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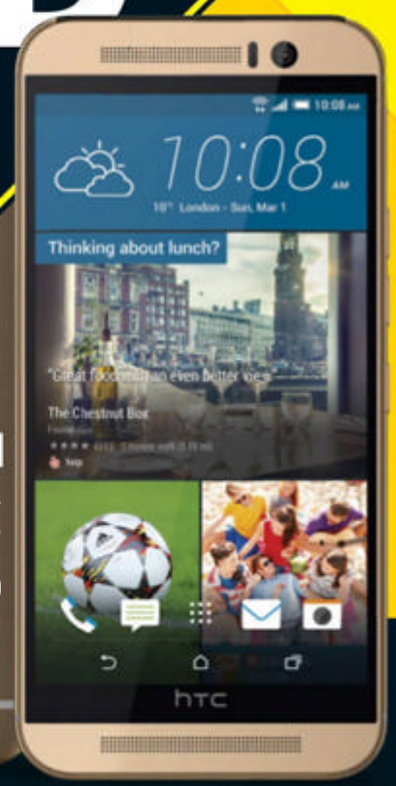
WHAT'S NEXT?

Wearables, virtual reality, hot new phones and the future of Android revealed



ONE AND ONLY

HTC ONE M9

The new gold standard reviewed

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Welcome

The HTC One (M8) was one of the most critically-acclaimed phones of 2014. Here at Android Magazine, we even short-listed it for our best phone of the year. Hoping to recreate the same success, its no wonder HTC took the 'if its not broke, don't fix it' approach to its flagship follow-up the HTC One M9 (though thankfully they dropped the parentheses). A modest update, fans of the earlier model have complained of design déjà vu.

The only changes were seemingly a new 20MP camera and a two-tone, silver-and-gold chassis. However, if you scratch below that chrome unibody surface, the M9 has a lot to offer – including a blazing Snapdragon 810 processor. Find out what we thought of it in our in-depth review from page 62 onwards, and check out our hands-on video on FileSilo.

Talking of incremental upgrades, Android Lollipop has had its first major update, adding new features including HD audio phone calls. Find out how to master Android 5.1 with detailed step-by-steps from page 26 onwards.

If you prefer revolutions to evolution, discover what's next for Android – including wearables, virtual reality and the hottest new handsets – from page 14. If this still isn't enough for you, check out our 50 best hacks, rooted apps and ROMs from page 45, to give you all the tools you need to build the Android that you have always dreamed of!

Jack Parsons

Jack Parsons
Deputy Editor

MEET THE TEAM

What most excites you about the future of Android?

Jack Parsons
Deputy Editor
I remain hopeful that, after further refinement behind closed doors, we haven't seen the last of the Google Glass headset.

Jamie Frier
Staff Writer
We've been promised virtual reality for decades, but now Android seems to be leading the charge in making it an actual reality.

Siobhan Maguire
Production Editor
The range of areas Android covers and how accessible they are. Everyone can experience a part of Android.

Adam Markiewicz
Senior Designer
I like how Google are making everything connected – from smart devices around the house to Android Auto in cars.

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» Video tutorials — Expert video guides to follow along with this issue's tutorials

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FileSilo
www.filesilo.co.uk/android

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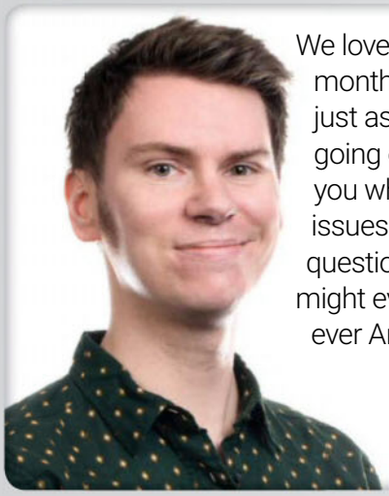

We love writing Android Magazine every month and hope you enjoy reading it just as much. However, this year we're going one step further and want to ask you what you would like to see in future issues. By answering just a few quick questions, you could really help us – you might even be selected to join our first-ever Android Magazine reader panel!

Jack

Jack Parsons
Deputy Editor

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New features are coming to your apps

Updates to Google Play Services are bringing new tools to the next generation of apps

The latest update to Google Play Services is out, making Google's comprehensive map services available to app developers via the new Places Application Program Interface (API), as well as giving you the option to turn your Android device into a games controller.

Using co-ordinates based off an Android device's longitude and latitude data, app users can now not only find out their location as pinpointed on a map, but important information about the place they're in, such as the address and phone number, as well as any major landmarks in the immediate area. This API makes use of the most-accessed mobile map in the world, Google Maps, and should improve the user experience by the sheer accuracy and volume of data that they will gain from this development. The API will enable developers to build their own map interface as well as accept user submissions of new places to add onto the list. It will be interesting in the coming months to see which developers build the Places API into their app and offer this in-depth service to their users.

New app age ratings for Google Play

This new version of Google Play Services also comes after Google announced that they have started vetting apps before they land on the Google Play store, to try and stem the tide of malicious or just plain rubbish apps that appear on the site. The pre-checks had been on-going for several months before Google announced that they were doing this, proving that testing apps doesn't slow the system down too much. This change in policy puts the Play store in line with the App store, and should hopefully streamline the site much more effectively.

"It will be interesting in the coming months to see which developers build the Places API into their app and offer this in-depth service"

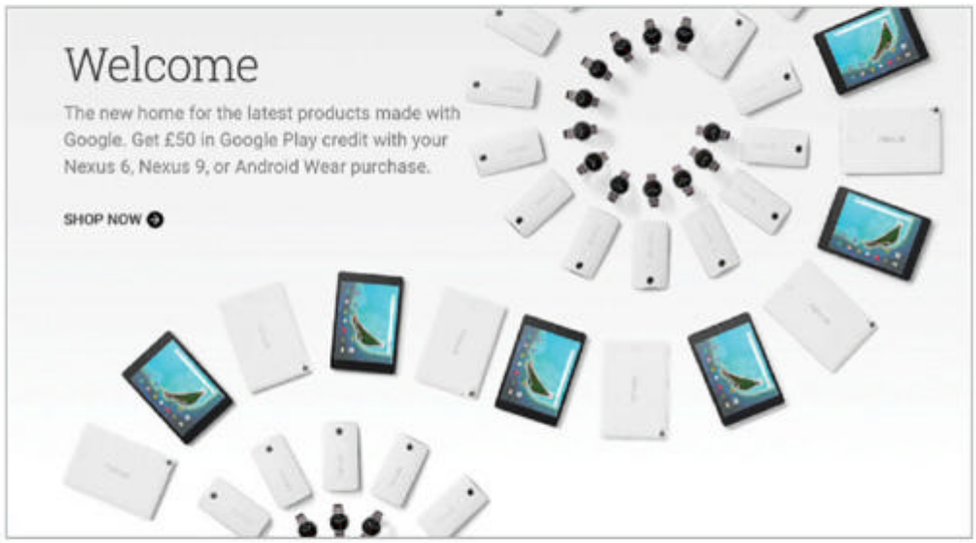
Also on the subject of location, is the new ability to alter location settings within an app. As it stands, if the location settings aren't accurate enough for an app, you'd have to exit the app, alter your location settings manually and then reload it. However, now Google has built in the option for an app to check location settings and, if they need to be turned on or the accuracy needs increasing, ask your permission to alter them automatically, so you don't need to exit the app at all. At the moment you'll still need to turn location settings off manually once you've finished, but this will remove a major hassle for both users and app developers, who often see their apps criticised for not working when all that is required is location settings to be changed.

While the above are both excellent, practical ideas, the fun really starts with the Nearby Connections API. The addition of this into an app will enable whatever is on your device's screen to be transmitted onto an Android TV which you can then interact with. The most immediate benefit of this is in the gaming world – you can project a gaming app onto your television and transform your phone into a controller that has the potential to be more responsive than a normal controller due to the accelerometer and gyroscope, and more flexible as controls can be personalised to suit the game.

Another useful addition comes inside Google Fit. The API has been split up into six distinct APIs so that some can work while others are idle. This will save greatly on processor workload, thus saving a lot of battery when the app is running by only having to perform one or two tasks. Google has also added support for body fat percentage tracking and sleep data, which are handy additions.

These APIs are a very positive step forward for Google, especially the location ones, as they are donating years worth of expertise to app developers, saving them time and costs in creating their own map-based services. Also, by opening up the world of mobile gaming on Android TVs, Google has given developers the opportunity to really push back the boundaries of mobile gaming. Transferring games from the small screen to the TV will give developers and gamers a much greater range of options, and should really take mobile gaming to next level.

The APIs are steadily rolling out across Google's Developer's page, although some are still in beta testing phase, meaning it will be a while before they are fully available for app developers to build into their apps. However, the prospect of harnessing Google Maps and Android TVs with minimal costs must be exciting developers across the world. ■



Google launch new shop

Google Store is the new home for Android hardware

Next time you want to buy a new Nexus or Android accessory, Google Play won't be able to help you. Google have launched a separate website, the Google Store (**store.google.com**) to sell all of the products it makes: phones, tablets, Android Wear, Chromebooks, Chomecast, Android TV, Android Wear, Nest, and other accessories as well.

The Google Store features detailed profiles of all its leading products, complete with specs listings, requirements, and links to reviews from trusted tech sites. All of this is coupled with lifestyle photography and a stylish layout, built around the same Material Design aesthetic that runs through Android Lollipop and Google's own-brand apps.

As a one-stop shop it is very thorough, listing everything from the new Chromebook Pixel to the lenses for the discontinued Google Glass Explorer headset. However, not every Google innovation is listed. If you're a fan of Google, Chrome and Android-branded t-shirts, notebooks and swirly lollipops (see what they did there, folks?), you will still need to head over to the Mountain View company's other virtual shop, **www.googlemerchandisestore.com**, to make a purchase.

Alternatively, if you prefer to handle your goods in real life, Google has also launched its first bricks and mortar Google Shop in central London. Located inside a Currys/PC World retail store in Tottenham Court Road, it sells Android and Chrome OS products, as well as offers interactive installations to play with, including a giant screen for exploring Google Earth.

Goodbye, Nexus 5

With the switch from Google Play to Google Store, there was one piece of kit that didn't make the transition: The Nexus 5. Widely considered Google's most successful smartphone, production was halted last winter with the launch of the next-gen (and much more expensive) Nexus 6. After several months the stocks have been depleted and the phone is not listed on the Google Store. However, second-hand sellers, such as Mobicity, are selling the handset SIM-free from £232.23. Running stock Android, existing Nexus 5 owners can be sure of updates for the foreseeable future, with the new Lollipop 5.1 already available.

Shopping cart essentials

What to purchase from the Google Store

Chromebook Pixel

»**Price** From £799

Technically the Pixel 2, this is the best Chromebook ever. It has a ludicrously powerful Intel Core i5 processor, a 12.85-inch screen with 2,560 x 1,700 resolution, brushed aluminium chassis and, in addition to 64GB solid-state storage for offline use, Google includes 1TB cloud storage free for three years.

Asus ZenWatch

»**Price** From £199.99

With a leather strap and rounded metal watchface, the ZenWatch is arguably the best-looking smartwatch on the market. As well as the usual 1.2GHz dual-core in all Android Wear watches, the ZenWatch boasts a 512MB RAM for faster performance and 4GB memory to make the most of Wear's recent music storage update.

Nest Protect

»**Price** From £89

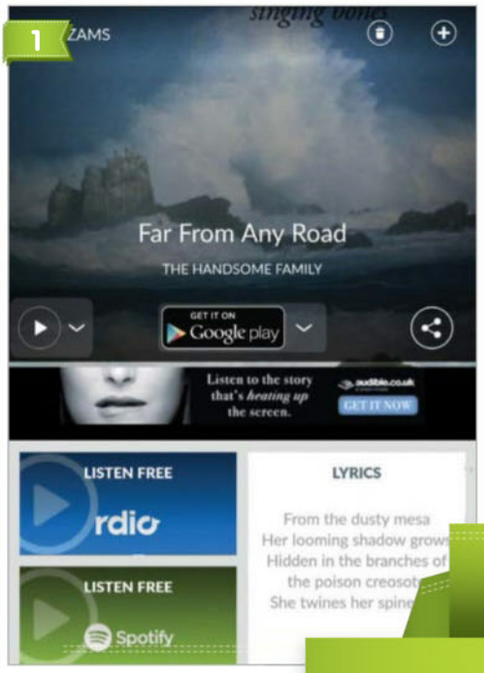
With its Tron-like glow and minimalist design, Nest Protect looks stylish. If you're not home to here the siren, this gadget will message your phone or tablet to let you know when it detects smoke or carbon monoxide. Unlike the Nest thermostat, Protect is easy to set up and doesn't require professional installation to get started.

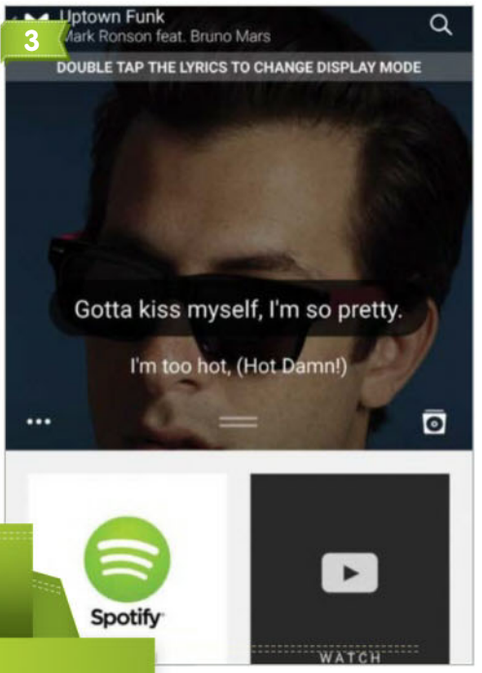
Glass Shades

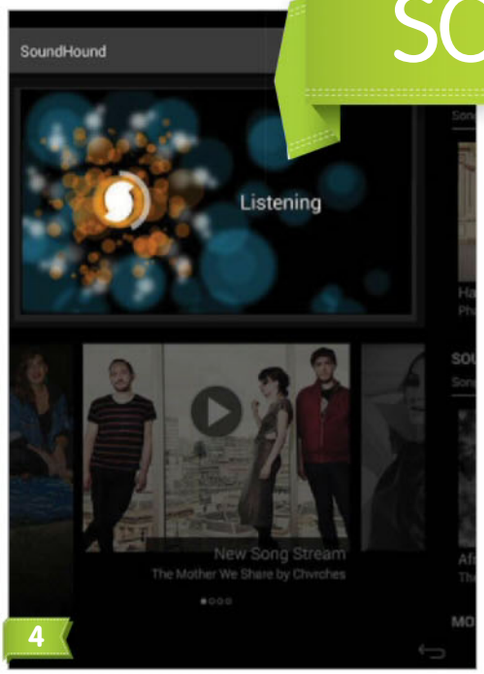
»**Price** From £100

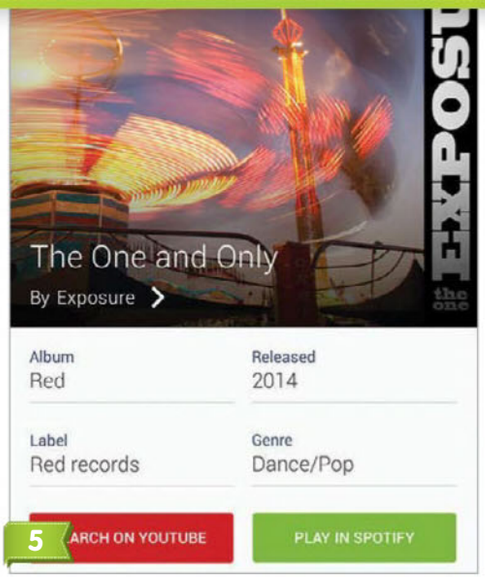
Google Glass may be dead, buts it's not forgotten. If you're a Glass Explorer, you can still pick up accessories for the smart-eyewear from the Google Store. This includes designer models like Diane von Furstenberg, however, for value-for-money, try this trio of sunglass shades that come in a variety of styles.

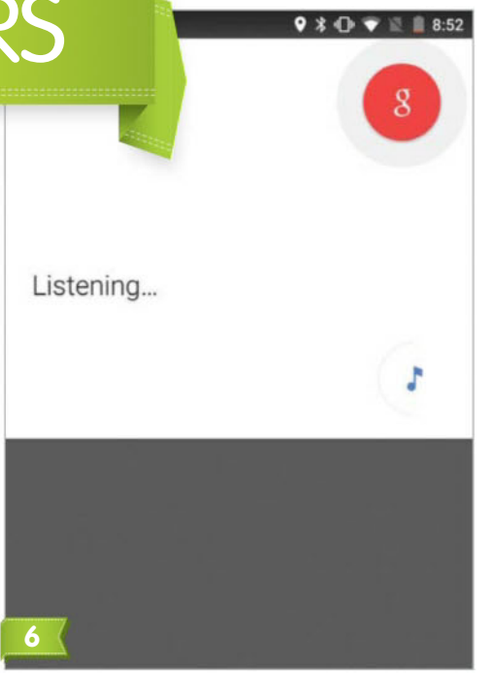
GALLERY OF... SONG SCANNERS











1 Shazam

Shazam will analyse any tune and not only give you its name, but links to buy it from sites like Amazon or stream it via Spotify and Rdio. You can also view the most 'Shazammed' tracks from around the world to see what songs are the most popular.

» **Price:** Free

2 Sound Search for Google Play

This widget from Google makes it easy to identify tracks. Tap it from your homescreen or lockscreen to view the name of the song and purchase it from Google Play. It only works with smartphones though.

» **Price:** Free

3 Musixmatch

Musixmatch doesn't just recognise songs, it gives you the lyrics with the music too. It's FloatingLyrics feature also overlays the words to any song that you listen to in your favourite streaming apps which include Spotify and Deezer.

» **Price:** Free + IAPs

4 Soundhound

The biggest name in song scanning after Shazam, Soundhound offers very similar features, including options to stream and buy songs, but with more detailed artist and band biographies, as well as useful album reviews too.

» **Price:** Free

5 TrackID

Drawing on Sony's huge portfolio to identify songs – while also encouraging you to use its Sony Music Unlimited streaming service – TrackID also includes artist biographies and music videos. It also works with Android Wear.

» **Price:** Free

6 Google Now

Google Now can also recognise any song you play it. When playing music with Google Now window open, a musical note button will appear. Tap this and it will display the song name, artwork and price to buy it on Google Play.

» **Price:** Free

Brain wave monitor

Calm and relax yourself with the Muse headband

Studies have shown that stress, through the release of the hormone cortisol, is a major cause of a range of conditions such as depression, strokes and a higher risk of infection. The amount of stress that people feel these days has rocketed, which is where inventions such as Muse come in.

Muse is a headband that fits over your ears like a pair of glasses and wraps around your forehead, measuring your brainwaves, much like a heart-rate monitor. It uses an Android app to talk to you in a calming manner, first of all calibrating your brain by asking you to think of as many countries, colours or historical figures as you can before you start the actual program itself.

The program is a three-minute session of breathing in and out in a controlled manner, concentrating on your breathing and trying to block out all exterior distractions. When your three minutes are up, you can see how well you focused during your session on the app. This exercise is meant to calm and relax you, reducing your stress levels and improve mental and physical wellbeing.

At a glance

- **Product name** Muse
- **Available from** www.choosemuse.com
- **Price** £239/ $299

Muse is a headband that measures your brainwaves and uses an Android app to teach you how to be calm.

Q&A

muse™ the brain sensing headband

We spoke to Muse representatives at the Wearable Technology Show 2015

Can you explain what Muse is?

A Muse is consumer-use brain sensing headband with medical grade electroencephalogram (EEG) sensors that reads the naturally emitted electrical activity of your brain. Your brain produces small electrical activity across various frequencies. Muse reads these frequencies and transmits the data to mobile devices, which can then use the algorithms and formulas to determine different states.

What are the short and long term benefits of using Muse?

A The possible short-term effects of Muse can include a relaxed feeling and sensation, improved focus and calm. Some of the long-term effects can include reduced anxiety, reduced heart rate, improved mood, a lasting feeling of self-control and how you respond to stress. A big area where it can be used is the sporting world. Before a sparring session I will use Muse to clear my head so I can concentrate on the session. It's also useful for relaxing you before you go into an important meeting or pitch. Finally, if you have trouble sleeping use it just before bed to get yourself into that relaxed state where you can just drift off.

What role does the app play and what mobile experience can users gain from it?

A Our app, Calm, leads users through a focused-attention exercise and uses the data read by the headband to provide real-time feedback on the user's brain activity level. This provides users with insights to their own thinking and thought patterns, and they can in turn take this feedback and guide their own training to improve their practice. The app gives you data in the form of a bar chart, graph and pie chart, to show what percentage of time you were calm, neutral and active for. Over time you should be able to increase the amount of time you are calm for which is where the brain training comes in and you can see this progression within the app.

Is there a particular goal to aim for?

A Yes. Usually while you're in a session you will hear waves against a shore, which has been shown to be a soothing sound. However, when you reach a certain high percentage of calmness, you will notice the waves begin to be replaced by birdsong, which shows you that you have progressed to a higher level. Your aim is always to try and get to the birdsong part before the time runs out, although it will be likely that you won't manage this for quite a while.

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10 you need to know about... Taking photos

1 Clean your lens

It might sound obvious, but cleaning your phone's camera lens is vital when taking a picture. It doesn't matter how many megapixels your camera is if it's streaked with fingerprints. Use a microfibre cloth or cleaning fluid for best results.

2 Let there be light

Some cameras do better with less light than others, but you need some illumination to take a good shot. For the best result,s try to have the source of the light behind and above you, ideally pointing towards whatever it is that you are taking a picture of.

3 Frame the shot

Take a second to get the right things in the right places in your viewfinder. Make sure the subject is slightly off-centre and is far enough away from the background so that things behind are not in crisp focus.

4 Boost your zoom

Digital zoom isn't as powerful as optical zoom, but few phones offer a proper camera lens. Instead you can buy accesssories for your existing phone camera, such as Photojojo's magnetic lens and the Oppo Clip.

5 Shooting modes

Whether you're shooting a landscape or portrait, there's a mode for that. Since there are few actual moving parts in a smartphone camera, software adjustments are used to make all the difference.

6 Change your camera

One of the biggest benefits of your phone camera being digital is that if you don't like it, you can download a new one from the Play store. Google Camera has recently been updated, while Camera ZOOM FX remains popular.

7 Forget the flash

While the Moto X's circular dual-LED flash is leading the way for smartphone camera flashes, they are still best left turned off or used for a flashlight. They sit too close to the sensor and can create harshed and washed-out pictures – not ideal.

8 Take lots of pictures

With no film to waste and lots of cloud storage options, you can never take too many photos. Experiment and take lots of pictures to learn how to capture a good one. The you can save your favourites.

9 Touchscreen tweaks

Google Play is full of photo editing apps from the social Instagram to the advanced Adobe Lightroom, to fix the colour, sharpness and saturation of your photos.

10 Take your time

More often than not, 'phonegraphers' snap a photo and share it online instantly. However, if you take your time and set things up just right, you can get some really good pictures from your phone.

The future of Android

Wearables, virtual reality and high-spec, low-cost handsets are just the beginning

The rest of the year is going to be a major watershed moment for the Android community. With Apple's iPhone sales rocketing and the likes of Nokia off the scene with Sony looking likely to join them, can Samsung, HTC, LG and the Chinese start-ups like One Plus, challenge Cupertino's resurgence? Whether the answer is in releasing fewer devices or taking some risks with design and technical innovation, things are certainly going to have to change at the big companies if Android is to re-establish itself firmly at the top of the smartphone tree.

Then we come to the world of wearable tech, where the open source nature of Android lends itself perfectly to this developing industry. Virtual reality headsets haven't yet become commonplace in the market, so hackers and developers could really help shape the future of wearable tech on this platform. We've all been waiting a long time for consumer virtual reality to become an actual reality and it is now tantalisingly close, so this year could be the one in which we see VR headsets come to the masses.

Smartwatches, too, will need to see an upsurge in popularity or face fizzling out, which would be a great disappointment for such an incredible product. Apathy and confusion has marked the smartwatch's lifespan so far, so what can manufacturers do to get people buying the devices as much as they are talking about them?

This question and more will all be discussed as we take a close look at the future of Android and what it can do to not only survive, but thrive.

What to wear

When will smartwatches truly take off?

Do you own a smartwatch? If so, you are among just 4.1 million people in the world. This is despite 1.2 billion normal watches being sold each year. So why don't more people make the leap to the smartwatch, which can tell you the time as well as who's calling you and how many steps you've taken that day?

Studies have shown that the key reason consumers haven't taken to smartwatches, before even cost or looks, is simply the question of why you would even want one. An incredible 50 per cent of people polled in a recent survey stated that they just couldn't see the point of smartwatches, and you can see what they mean. As it stands, the main reason to buy a smartwatch appears to be not having to take your phone out of your pocket to see who's text you.

So the key for smartwatch manufacturers to up sales seems to be making the smartwatch seem more than just a small phone screen. With smartphone manufacturers battling it out to produce the biggest device going, smartwatches could soon find themselves in the niche that the mobile phone once found itself in – the small, portable communication device. Just over half (56 per cent) of the people interviewed by research company GfK, said that they would be more interested in a smartwatch if it included a SIM card, enabling them to use it like a tiny phone. With fitness tracking, calendars, reminders and the ability to make and receive calls without having to have your phone on you, smartwatches could be the next big thing for the active person, the traveller or the kind of forgetful person that never has their phone on them.

The other niche that smartwatch manufacturers are looking at is the medical market. At the recent Wearable Technologies Show in London, Gary Atkinson of ARM Technologies said that smartwatches could change the world thanks to their medical application. If an elderly or diabetic patient had a smartwatch that was synced up to the local hospital, both the medical staff and the patients could keep tabs on things such as their heart rate or blood sugar level, without one or other of them making trips to and from the hospital.

Expect in the coming years to see more smartwatches that can act independently from your phone, turning a glorified pedometer into a useful, practical product with a clear selling point other than having the latest fancy gadget. Also, if Gary Atkinson is right and smartwatches become the medical force for good that he hopes they can be, smartwatches could easily be 2015's most exciting Android device.

Should smartwatches, like this Moto 360, be more focused on form or function?

What is the most popular form of wearable?

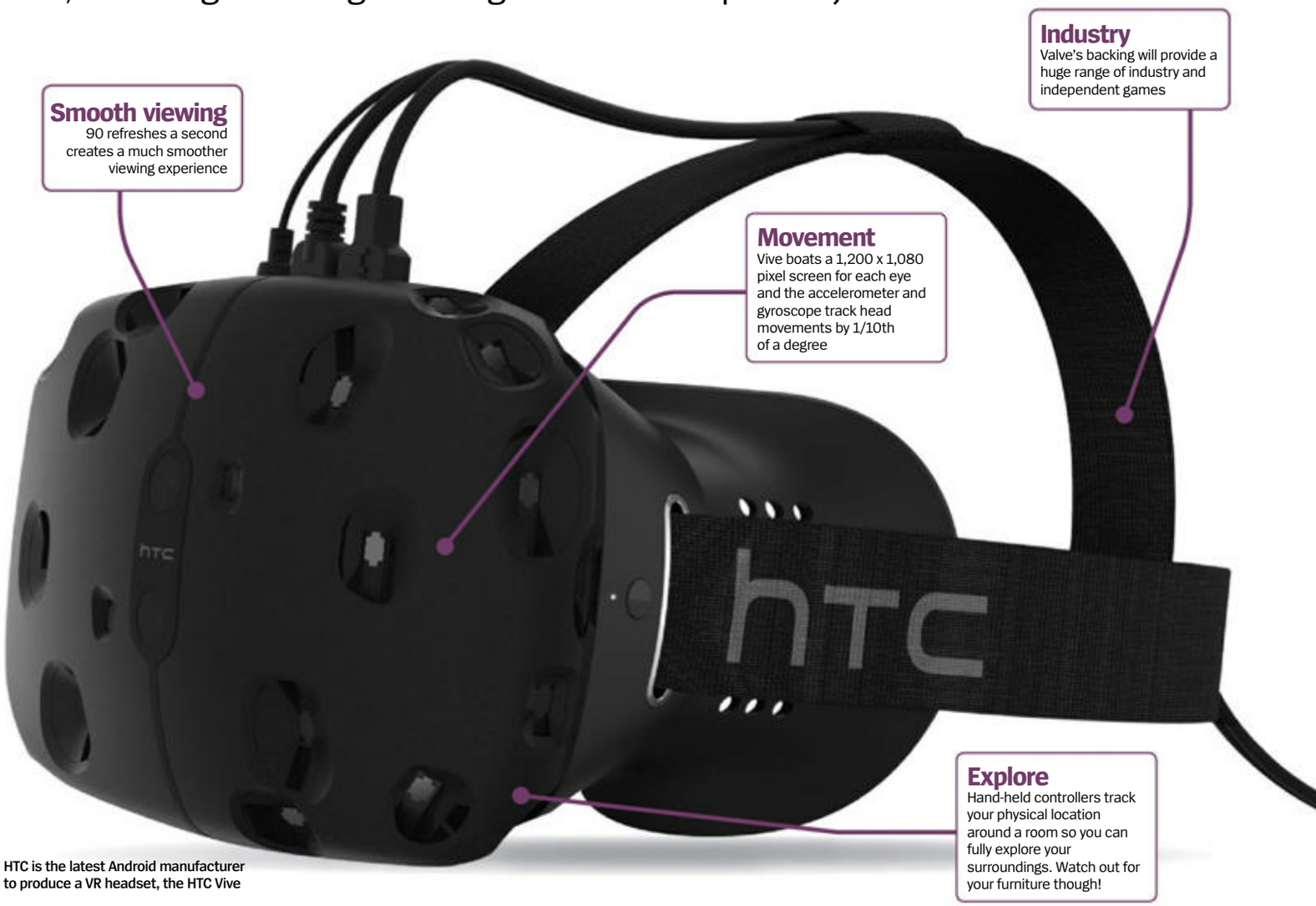
People prefer to wear smart tech on their wrists, according to a recent survey of US and European wearable enthusiasts. In an online survey of 16,203 adults, 42 per cent of US and 36 per cent of EU shoppers said they would be interested in buying a smartwatch or fitness tracker. This survey by Forrester Research bodes well for the future of Android Wear, but Google may want to reconsider its Glass headset – smart glasses were the least popular way to interact with tech. Headsets attracted only 18 per cent of US and 12 per cent of EU wearable fans.

However, smartwatches and fitness trackers are not the only way forward. A third of US respondents said they would also be interested in technology that is capable of clipping onto users' clothing, though this only attracted under a quarter of those in Europe. Clothing-embedded tech appealed to 19 per cent of US and 15 per cent of EU shoppers while smart headphones attracted a fifth of US consumers' interest and a tenth of the EU market. 16 per cent of Americans and 13 per cent of Europeans also said they would be interested in wearable tech embedded in jewellery.

While Motorola debuted a stick-on 'digital tattoo' for users to unlock the Moto X last year, only 8 per cent of US and 4 per cent of respondents said they'd be interested in having tech tattooed onto their skin. Smart contact lenses also proved unpopular.

Virtual reality rivals

HTC, Samsung and Google battling it out for VR supremacy



HTC is the latest Android manufacturer to produce a VR headset, the HTC Vive

Even though virtual reality headsets have been around for over two decades, they have never really caught on in the way that they should have. This is generally thought to be down to a lack of games, affordability and the fact that a lot of people suffered with nausea when using them, as the refresh rate wasn't fast enough to deal with rapid head movements. However, on the horizon is an exciting batch of VR devices that are more likely to turn heads than turn stomachs.

The first to make waves in recent years was Oculus Rift, one of the most successful Kickstarter projects in history. However, despite an acquisition by Facebook, it has not been fully rolled out to consumers. Samsung Gear VR has also proven difficult to market, with the Android-powered device still only available in Innovator Edition. HTC and Valve announced their collaboration on a VR headset at MWC, unveiling the Vive, which they hope to launch later this year.

This raft of big name players all battling it out for supremacy in the virtual reality world heralds an exciting time for Android fans, who will be hoping that the competition between companies and sheer volume of amateur developers attracted to the open nature of the platform will finally result in an viable and entertaining VR headset.

Of the three and the newest kid on the block, the HTC Vive looks like the most interesting new product. Its refresh rate of 90 refreshes per second means that the nausea felt by quick head movements should be greatly reduced and its partnership with Valve is incredibly exciting for gaming fans as the American company is one of the world's biggest game production companies and is renowned for pushing independent games.

After so many false dawns, it seems like everything is falling into place for the next couple of years to be the time that virtual reality enters mainstream entertainment, and Android will be right at the forefront of that movement. For the first time there is the technology to make the experience enjoyable, gaming companies are throwing their weight behind it, meaning there will be a range of games to play, and the fact that companies are actively encouraging developers to toy around with their products should result in some incredible innovations.

Q&A

Peter O'Luanaigh is the CEO of nDreams, a major developer of games for VR headsets and a major backer of the Samsung Gear VR and Project Morpheus. In our Q&A he gives his opinions on what he thinks is instore for future of virtual reality gaming.

Why did you first enter the world of virtual reality gaming?

A We worked closely with Sony and we got a very early look at the Morpheus after we'd been working with the Oculus [development kit]. I just flipped about VR when I saw these [headsets], though, I fell in love with them. The kind of games we really like to make as a team as they have got stories and take you into other worlds, and VR is brilliant for that. So that's when we decided to focus the company on VR as we knew it wasn't just going to be a gimmick. For games that want to teleport you to another world, VR

actually makes things a lot better. Having seen the HTC Vive at GDC, [the whole VR industry] is even better than I thought.

How do you have to think differently about developing a game for VR rather than a console?

A We have to think about if your character's got glasses, how that feels in VR. What about if you've got a tall character, a short character, how does it feel playing a female or a male? We have been looking into some really crazy things, some that we've found out were never meant to be tested and some that have been really fun. Having played things like *Alien: Isolation* in VR, I ripped the headset off in fear – I'm ashamed to admit it. But in there, you believe that the alien is going to get you and you panic. I love that – how VR can act as an emotional amplifier.

What's in the pipeline?

A We're now working on a couple of launch titles for the major headsets – so we've got two titles for the Gear VR, *Gunner* and *Perfect Beach*. But then we've got much bigger titles in the works for the Oculus Rift, Project Morpheus and Vive. The only one we've announced so far is *The Assembly* – a made-for-VR adventure game that's really mysterious, with a few characters you jump between and great dialogue.

Which of the big players do you think is most likely to succeed?

A As every PS4 is the same, you know that every single person wearing that VR will be able to get a headset, plug it in and be off. That's a big advantage actually, and I think it may mean that Morpheus sells faster when it launches than the Oculus or the Vive because I suspect those headsets will need powerful PCs. People will spend quite a lot of money getting the right PCs and the hardware up-front eventually, and the average PC will come down in price in the long run, but right away? You're going to need a beefy PC and be a gamer that enjoys running a top-end gaming computer to take advantage of it, whereas the Morpheus is something everybody can use.

Where do you see VR going in the next few years?

A Nobody knows what's going to be the biggest selling game in VR, nobody knows what the best mechanics are going to be… there's a lot of sharing between developers in VR, especially in the UK – we have a lot of meet-ups, talking about what works and what doesn't work. There's a very non-corporate feeling to it all, there's no PR secrets, no 'we're going to beat you' mentality. We're just helping each other out, learning, seeing where it's going. There's such a huge, wide-open territory here, you know? So many genres for people to tackle, so many games and things you can do. That's before you start thinking about education and the kids in schools wandering around WWI trenches thanks to a £250 bit of hardware. That's amazing to consider, alongside the hundreds of other applications VR has. There's enough room for everybody and we're all trying to move forward.

The other challengers

Sony Project Morpheus

The only VR headset to be compatible with the Sony PlayStation 4, and therefore its enormous range of shooters and action games, Project Morpheus was revealed at GDC 2014. It is thought to be about a year away from having a full consumer edition revealed and should prove a major player in VR gaming.

Razer OSVR

Razer introduced the world to the Open Source Virtual Reality (OSVR) system at the start of 2015 by describing it as 'the Android of virtual reality'. This is because the product is a headset that encloses a totally open platform, ideal for tinkering. Razer hopes this will help to standardise VR development.

Google Cardboard

The words 'simple yet effective' could almost have been made for Google Cardboard. It is essentially a cardboard box, which when constructed, splits your phone up into two screens that comp together, creating a stereoscopic, 3D effect. It's available now for around £10 and works amazingly well.

The next generation

Whose phones will you be buying in 2015 – and beyond?

At the end of 2013, nearly a third of all phones bought worldwide were made by Samsung. However, at the end the 2014, this figure has plummeted dramatically to under one in five. Part of this was down to a good year for Apple, but mostly because of the rise of a number of rivals, such as Huawei and Xiaomi. Although their market share in 2014 was just 6.3 per cent and 4.4 per cent respectively, this represents a meteoric rise from 2011 market shares of 3.5 per cent and 0.1 per cent respectively.

This enormous growth has come about because the phones are decent in quality while also being cheap to make and market, as both companies do their trading online so they don't have to pay vendors to sell their product. Both brands are making a huge impact in India and China, where sales of big name Android brands have fallen in the face of aggressively priced phones. This has helped establish these start-up companies and form the foundation of a push toward the west. However, HTC CMO Idris Mootee said in a recent interview with Ad Age, that Xiaomi is never going to make it in the US, stating that it has a very short lifespan.

He may have a point. Even if Xiaomi and Huawei do try and make inroads into the US and UK markets, they will come up against the established giants. A smartphone is a pretty major investment and people generally would prefer to spend a little more for a brand they recognise and trust. However, as time goes on and these incredibly young companies catch up technologically, it will be hard to ignore them.

2015 will certainly be too early for the likes of Xiaomi and Huawei to make a serious dent in the western smartphone market as they still have a lot of work to do. However, there is definitely enough momentum in these brands to suggest that 2016 might be the year that low-priced, top quality phones from China and India could become the next big thing in the west.

Fall of the titans

So with the new kids on the block rapidly catching up with the big boys, what can we expect from the giants of the Android world in the coming year? Samsung and HTC have both launched their flagship models for 2015 in the form of the Galaxy S6, S6 Edge and the One M9, and Sony's Xperia Z4 and LG's G4 are both likely to be dropping in the next few weeks.

Samsung and HTC have used very different approaches when creating their latest brands. Samsung has ditched its traditional plastic backing for a more premium metal unibody at the expense of the removable battery and expandable storage. HTC meanwhile, has barely tinkered with the design of the M9 at all, focusing all its attention in upgrading its specs.

Samsung's approach has divided fans, some of whom love the new body, while others are lamenting the loss of two key features that differentiated the Galaxy S range from the iPhone. The M9 is less divisive but might not be different enough to attract the casual shopper on its first impressions alone.

Sony, however, are really on the ropes. Despite making critically acclaimed phones, this rarely translates into sales, especially as a new one is released every six months. Sony's chief executive Kazuo Hirai didn't rule out dropping the money-losing mobile arm of its operations when asked about it in February.

> "With the market share of the powerhouses decreasing... 2015 is going to be one of the toughest years for the big Android brands"

High-spec, low-cost phones from OnePlus and Huawei are transforming the Android landscape

With the market share of the powerhouses decreasing and a major player like Sony potentially dropping out of the competition, 2015 is going to be one of the toughest years for the big Android brands to battle their rivals.

It will take a few months to see how well each company's 2015 flagship is doing, and longer to find out if they can hold off the challengers, but one thing is certain – for Samsung, HTC, LG and hopefully Sony to stay at the top of the tree, they are going to need to pull something dramatic out of the bag in the next year. Watch this space.

Will we still be running Android in years to come?

Everyone's favorite version of "open" Android could be giving the stock operating system a run for its money – literally. The company has just raised an extra $80 million in funding from various providers, a hefty sum for a company that started out as a community driven mobile OS.

The company currently offers two platforms, Cyanogen and the open source CyanogenMod. Originally touted as an alternative to early Android builds, the company has gained traction running as the built-in operating system for the One Plus One and other Chinese phones.

With Cyanogen using the money to develop its operating system further and hiring engineers, is it unreasonable to imagine the company one day launching its own handset? To make this prospect even more tantalizing, Cyanogen have also formed a new parternship with Qualcomm to make the OS easier to use on the chip-maker's hardware.

Would this be a bad thing? While Google's latest mantra for Android is 'be together, not the same' it has been careful to limit how much manufacturers can alter Android Wear and its Material Design is making the web, Android and Chromebooks look more like each other than ever before. Ostensibly an open OS, perhaps a hypothetical Cyanogen phone would allow users to mod the operating system as needed and offer a level of customization not available in existing Android builds.

CYANOGEN

Sony's highs and lows

We chart the rise and fall of the smartphone manufacturer as it teeters on the edge of existence

Sony Xperia Z3

What a phone. We gave it five stars when we reviewed it, as did quite a lot of others. The Z3 was powerful, fast and wonderfully designed. It was waterproof as well, meaning we could take it to places that we wouldn't dream of taking others, enabling us to make the most of that excellent 20.7MP camera. It was quite pricey, however, and was the third in the Z series to be released in 2014.

Playstation compatibility

If you think of Sony, your mind will usually turn to the PlayStation, Sony's legendary console. It was a masterstroke when Sony announced PS4 Remote Play, so you could play your favourite PlayStation games on your phone by hooking up your DualShock controller into your Xperia Z3. This was compatibility at its finest and could have swayed a large number of people to Sony.

Lost money

Sony's mobile division was forced to write off 180 billion yen (£1bn) last year in losses. Even though sales have slightly increased, Sony isn't shifting anywhere near the numbers required to turn a profit and save the division. CEO Kazuo Hirai's unwillingness to rule out an exist strategy speaks volumes about Sony's long term plans for their phones.

PlayStation Mobile

Sony had made an attempt at phone gaming before but it was a huge disappointment. PlayStation Mobile was launched in 2012 as a platform for indie developers to create games for PlayStation Vita and Sony mobile devices. However, there were long periods without any decent games and it was competing against the huge volume of games available on the Google Play store. It was announced on 11 March that Sony was going to close the platform down, with the last content being published on 15 July.

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THE ANDROID APPLE WATCH

Here's how to get every major Apple Watch feature on Android Wear

You probably caught some of the hullabaloo surrounding the (second) official unveiling of the Apple Watch back in March, and there are millions of iPhone owners waiting to pull the trigger on a new purchase. Given Apple and Google's rivalry in the smartphone market, people are naturally comparing the companies' smartwatches against each other: Apple Watch vs the various Android Wear devices on the market.

What stands out immediately is the pricing. The cheapest Apple Watch starts at £299 ($349) while the most expensive Apple Watch Edition starts at £8,000 ($10,000). With the right watch strap, that price could rise even further. Prices for the cheapest Android Wear device, meanwhile, start at just £159 ($229) for the LG G Watch. So even the most expensive Google-powered wearables are only just beginning to trouble the cheapest Apple Watch.

So what exactly are you paying for? Apple executives showed off a long list of features offered by their new wearable, but is it worth selling your car to get one? Particularly when you take into account the fact that many of these features can be duplicated (or even improved upon) if you own an Android Wear smartwatch.

As with Android on smartphones, Android Wear on smartwatches is a much more flexible and customisable platform. Over the next few pages we'll show you how you can emulate the best features of the Apple Watch with an Android Wear device, as well as highlight some of the capabilities that make Android Wear a compelling option even before you look at the cost.

The next time someone is showing off an Apple Watch, you can counter them with the features of your own Google-focused wearable, and the good news is that there are more upgrades and apps in the pipeline to look forward to.

Track your fitness on the go

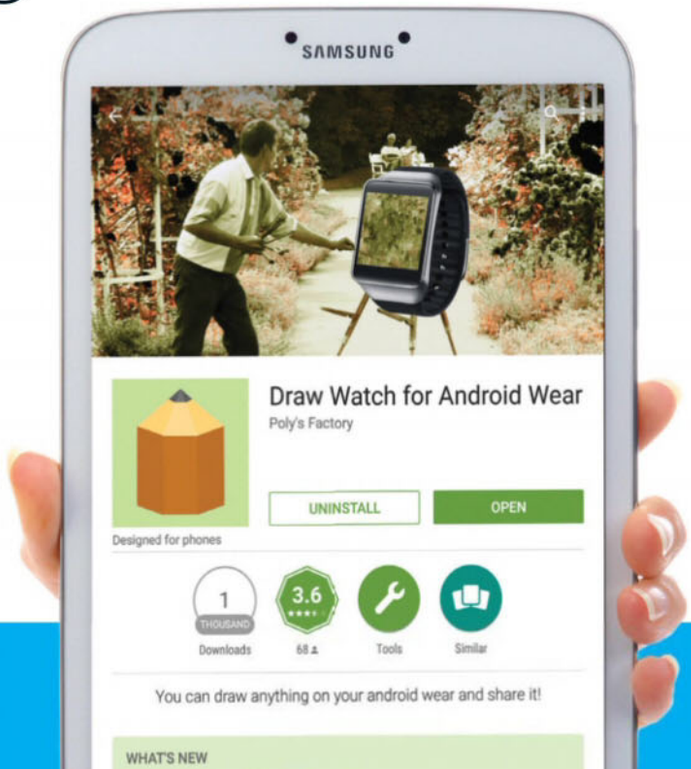
Apple doesn't have the health market all to itself

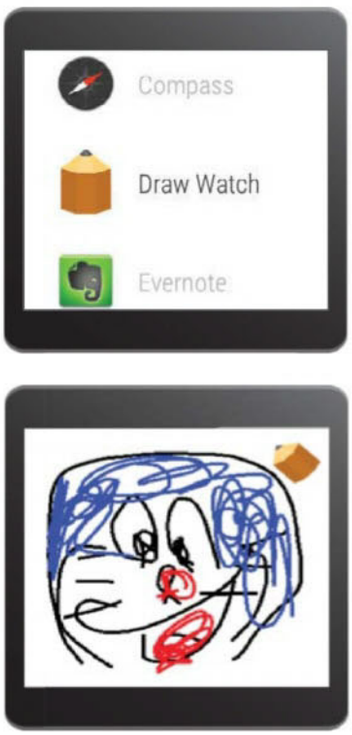
Apple and Google are going head-to-head in a whole group of areas, and that includes health. Google Fit (competing directly with Apple Health) uses the movement of your smartwatch (or smartphone) to track the amount of activity you're getting and the type of activity it is: walking, running or cycling. It's up to you if you want to set a particular amount of movement or a particular amount of time spent exercising, but you'll get a heartwarming message of congratulations if you meet your target each day.

Head into the companion app and you can dig deeper into all of the statistics Google has collected about you – browse back by day, week or year and set yourself new goals for tomorrow. There are a range of charts available that show you a breakdown of your exercise over time, and there's the option to add weight and heart rate manually too. Google Fit really comes into its own once you've built up a bank of data and can start analysing it to improve your future fitness regime.

Draw Watch on-screen doodling

Sketch out anything on your wrist to share with others





Apple has made a lot of the 'unique' methods of communication that the Apple Watch offers, including sharing doodles with your nearest and dearest contacts. But it's not difficult to get the same sort of functionality on your Android Wear watch as well. The app you need is a free download called Draw Watch for Android Wear.

Once it's up and running you can begin doodling with your finger. Tap the wrench icon in the corner to bring up your colour palette and slide further to the right to see sharing options. You can't quite create a masterpiece on your wrist but it's still a fun app to have a play around with, whether or not you decide to share the results with anyone else.

Emulate the Digital Crown

Adjust your interface to totally suit your needs

The Digital Crown on the Apple Watch lets you navigate between apps and menus, as well as return to the homescreen. On Android Wear, a swipe up or down is enough to switch between your apps, while a just few swipes to the right will swiftly get you back to the homescreen with your chosen watch face.

Of course, part of the appeal of Android Wear is the ease that you can configure the look of the interface — unlike the Apple Watch, you don't have to settle for a standard grid of bubbling apps. You can switch between watch faces as you like and try designing your own.

Wear Mini Launcher is one app that enables you to configure the Android Wear interface exactly the way you like it. It lets you activate a drawer of apps, very much like those on Android smartphones, which you can customise as required and which is much more intuitive than the integrated solution that's built into Android Wear.

That's not all: if you swipe to the left again then you can bring up a quick settings panel showing brightness, battery life and a whole host of toggle switches. From this screen you can turn various options on and off (like Wi-Fi on your phone), adjust the volume of your device, and so on. It's a clever app and it shows how useful third-party add-ons can be.

In terms of the apps that appear on your watch, it's up to you which ones are installed on the wearable itself. Apps can be installed through your phone via the Play store app and uninstalled through the Apps section of Settings in the normal way (note some Android Wear-only apps won't show up in the app drawer on your phone, so you'll need to go to Settings to find them).

Boost the battery

Make the juice in your wearable last for just that bit longer

We don't yet know exactly how good (or otherwise) the Apple Watch battery life is going to be but the rumour is that you'll be searching for a charger by the evening, even if you start the day with a full charge. You need never worry about Android Wear battery life with Wear Battery Stats installed: it lets you see how much time is left and which apps are using up the most juice.

If you want to prolong the length of time that your smartwatch lasts between charges, then delve into the settings inside the Android Wear app on your phone. Choose Block app notifications from the app menu and you can specify certain apps that aren't allowed to disturb you (and which will save on battery drain at the same time). Turning off the 'Always-on screen' option in the list helps a lot too.

What you could buy for £8,000

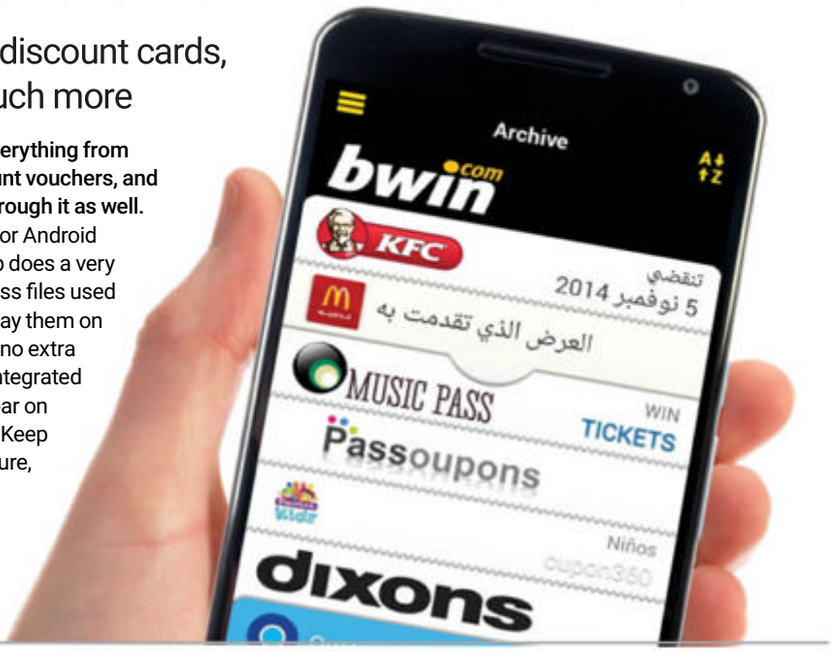
For the same price as the cheapest luxury Apple Watch, it's amazing what you can get on Android...

- x1 Apple Watch Edition £8,000
- x50 LG G Watches £159
- x14 Motorola Nexus 6s (64GB edition) £549
- x8 Chromebook Pixels 2015 Edition laptops £999

Passbook-style services on Android

Boarding passes, discount cards, gig tickets and much more

Passbook on iOS holds everything from concert tickets to discount vouchers, and of course, Apple Pay runs through it as well. There's no exact equivalent for Android Wear, but the PassWallet app does a very good job of storing the .pkpass files used by Passport so you can display them on your Android phone. There's no extra Android Wear functionality integrated as yet, but notifications appear on your smartwatch as normal. Keep your eye on Google in the future, because the company is promising to reveal more development news on Android Pay (its Apple Pay rival) in a few months time.

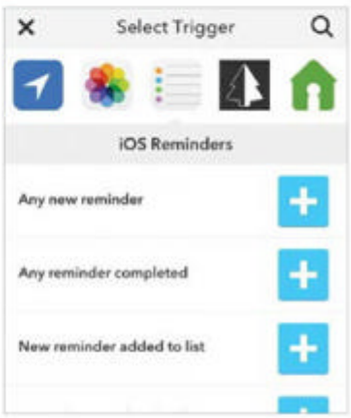


Get Apple notifications on Android Wear

With a little help you can get your iPhone notifications popping up on Android Wear

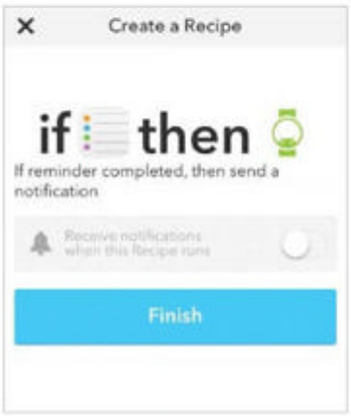
1 Install the IF app

IF is a free iOS app that acts as a front to IFTTT (If This Then That), which lets you plug a host of services into Android Wear. You can create notifications for any service IFTTT supports, including iOS reminders, email (for iCloud) and even the weather.



2 Choose your trigger

Create a recipe and you'll be asked to choose a trigger (the "this" part of the equation). It's up to you what you want to select: it could be a Facebook update, a new file in your Dropbox account, or as here, an iOS reminder that's been completed.



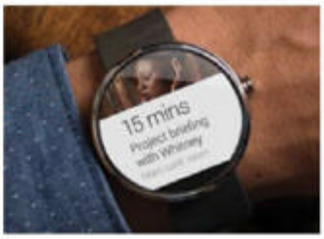
3 Select an action

Next, choose an action (the "then" part of the process). Here, you want to select Android Wear. IFTTT will ask for permission to connect up to your various services, including your smartwatch, as you go. Tap on Finish to save your newly created recipe.

The next Android Wear update

Wi-Fi support

The next Android Wear update is said to include some notable new features, not least Wi-Fi support. That means you'll be able to get online right from your smartwatch without your phone's help – whether you're trying to run a voice search for nearby restaurants or flick through your Evernote notes from your wrist, that's going to prove very helpful in all kinds of ways. It also means that watch faces and apps can be updated on the wearable directly.



Gesture controls

Flicking through the alerts and Google Now cards on your Android Wear watch is all well and good, but what happens when your other hand isn't free? The rumours are that the next Android Wear update is going to support gestures, so you will be able to just flick your wrist to scroll through a notification, for example.

Moto Maker

Motorola's smartphone customisation service, Moto Maker, is now available for Android Wear smartwatches (well, the Moto 360 at least). You can pick from three different finishes, nine separate band styles and a selection of pre-installed options for the watch face – that's at least as much choice as you get if you decide to splash a lot more cash on an Apple Watch. You can head to the official Motorola website now to have a go at kitting out your own wearable online.

» masterclass

faq

Ask your own question online at littlegreenrobot.co.uk

Why don't I get updates immediately?

When Google announces an update, there is still a lot of work going on behind the scenes. There is usually a version for developers to tinker with, but updates to most users come via the carriers, who have to make sure that the update will not break your phone.

Get the most out of Android 5.1

We will show you how to get to grips with the latest Android update

The launch of Android Lollipop has been a bit of a mess, with many Android phones yet to get the update. Indeed as of February 2015, more people were using ancient Android systems like Ice-Cream Sandwich and Gingerbread than Lollipop, which is still only on 1.6 per cent of devices.

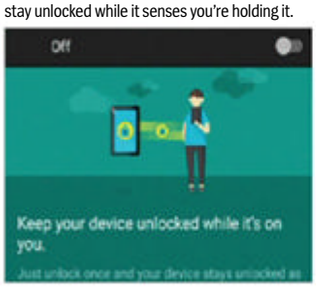
Despite this, a number of users have already been receiving Lollipop updates, with select Nexus devices upgrading to Lollipop 5.1, which has come with a raft of improvements. While most of these are purely aesthetic, Google has listened to the Android community giving users interesting new features and re-introducing features that were removed, such as silent mode.

If you're lucky enough to get the update, read onto find out how to make the most of it.

New design features

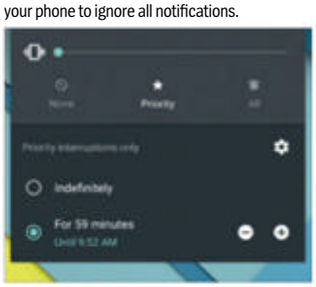
On-body detection

It can be frustrating when your phone locks while you've got it in your hand, so Android 5.1 new security feature fixes this so your phone will stay unlocked while it senses you're holding it.



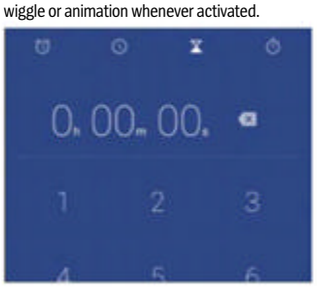
Better volume control

Pressing the volume button now brings up three options to change the volume for all notifications, just priority notifications or to set your phone to ignore all notifications.



Animated time icons

The various modes in Android's clock app now have animations. It's a fun addition – the alarm clock, normal clock, stopwatch and timer have a wiggle or animation whenever activated.



5 things to know about Android 5.1

1. It makes your phone faster

Ars Technica benchmarked a Nexus 6 and a Nexus 5 running Lollipop 5.0 and then 5.1. They noticed a huge improvement in the Random Read and Write scores, so your updated phone should feel faster in general navigation. However, there wasn't much difference in the Sequential Read and Write benchmarks, so loading games will not be much quicker which is a shame.

2. Four cores switched on

In Android 5.1 all four cores in a quad-core phone are always on so should react faster when needed. This is great a change from Lollipop 5.0, when two of the cores would shut down when not in use, resulting in a much longer loading time.

3. Switch between sims

Android 5.1 will now support two sim cards. This means that if your phone is a dual-sim phone, you'll be able to switch between the two sims quickly and easily.

4. Getting the update

At the time of writing only Nexus devices had received the update, but updates should be here, or on the way soon, for Motorola and HTC devices, as well as preloaded on several phone models shipped after March.

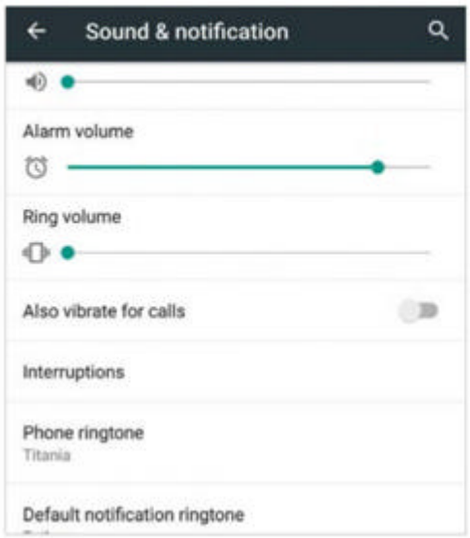
5. Fixed bugs

One of the most common frustrations for smartphone users is sudden app closure, but Google says the update should fix bugs that cause these closures.

Avoid interruptions

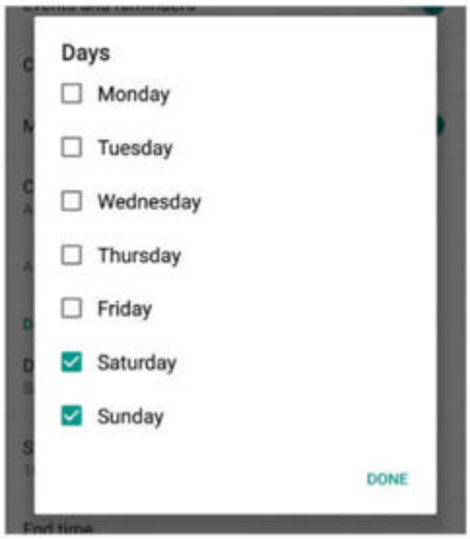
Stop people interrupting you in your downtime

One of the great benefits of mobile technology is also one of its greatest curses. With your phone beside you all the time you are always contactable. However, Android 5.1 has built on Lollipop 5.0's Interruptions and Downtime modes to give you more choice.



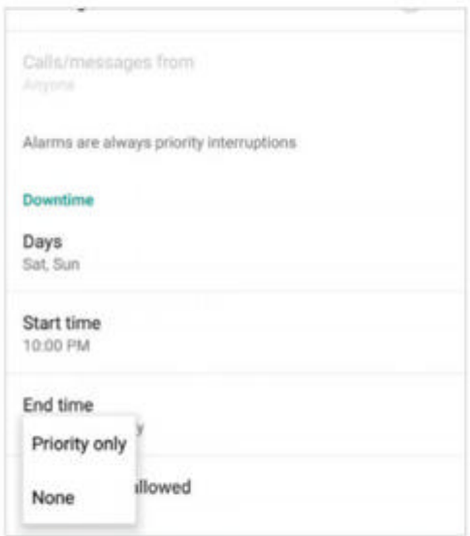
1 Enter your settings

Pull down the top menu and press the Settings icon. Scroll down to Sound & Notification and give it a tap. Around halfway down the next menu you should see a menu option for Interruptions.



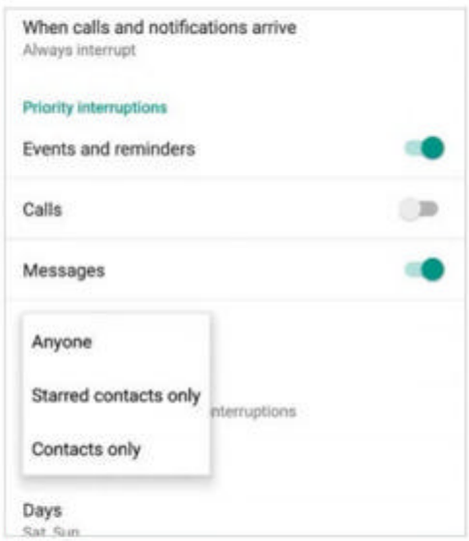
2 Choose your downtime

Tap this and then enter the Interruptions screen. Scroll down until you see the Downtime menu. From here, you can select the specific days and times during which you want to avoid being disturbed by notifications.



3 Select your interruptions

The previous version of Lollipop only let you select Priority Interruptions, such as alarms and messages from important contacts, but now it gives the None option, meaning your phone won't go off for anything.



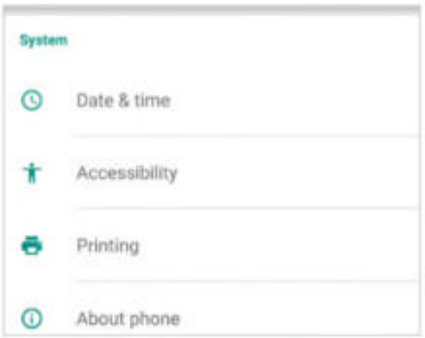
4 Set priorities

Priority interruptions let you decide what notifications go off during your downtime. Alarms are always a priority but you can select messages or calls from particular contacts by turning one on and choosing a particular option.

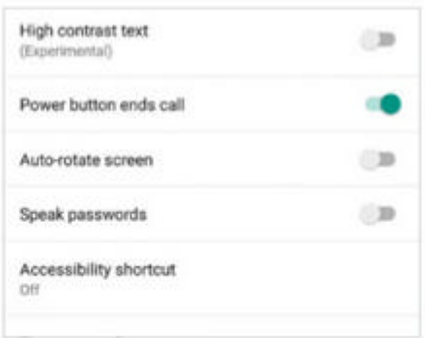
27 min guide

Android 5.1 now lets you use the power button to quickly end a call

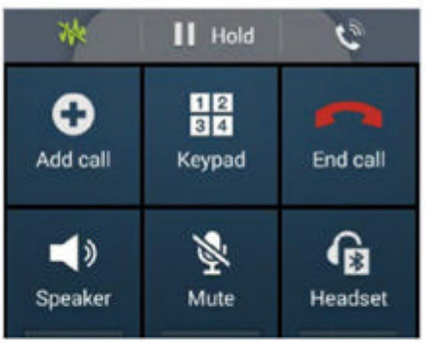
End calls with power button



1 Pull down the homescreen menu and click through to your Settings. At the bottom of the screen is the Accessibility menu option. Tap on that to enter the menu.



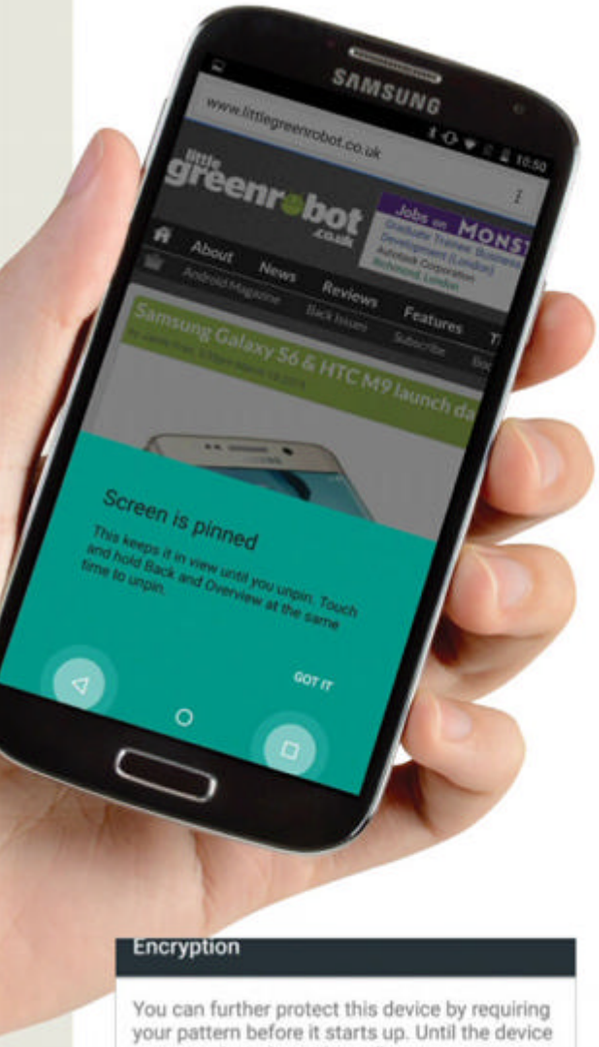
2 Scroll down until you see the 'Power button ends all' button. Press the slider to select this option, something that wasn't available in Lollipop 5.0.



3 Test it out by making a call. Instead of pressing the End call button on your phone's screen, which often doesn't appear for a while, you can now end calls promptly.

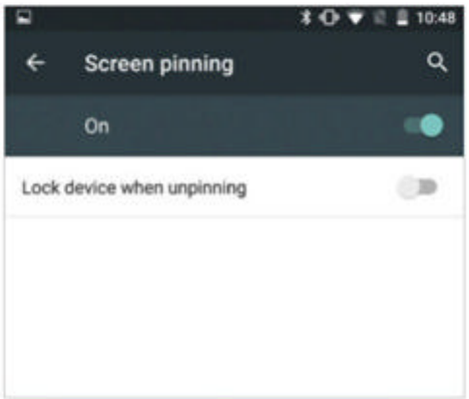
Lock your pinned screens to the homescreen

Screen pinning gains new security feature



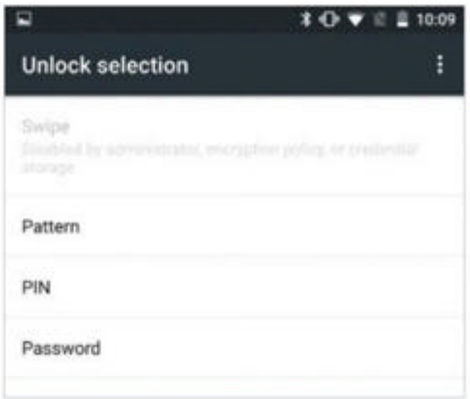
Screen pinning was a brand new feature in Lollipop, enabling users to lock a particular app to the screen so they couldn't navigate away from a page with an accidental swipe. This has proven to be a very popular feature and Google has now pushed on with it. In this latest update users can still pin the app to the screen but can also set it so you require an unlock code, such as a pattern or password, to unpin it.

This is essentially an added safety device in case you leave your phone unattended with an app running and someone grabs it. They then can't get into the phone without knowing the code, whereas before, two button presses would leave the device wide open for them. We will explain how to set up the extra lock screen for when you're in pinned mode, so you can feel safer if you need to leave your phone unlocked.



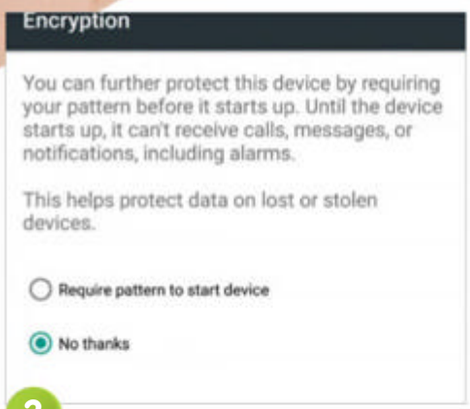
1 Enter security settings

Pull down the top menu and scroll down to Security. Tap that and scroll all the way down again until you see the Screen pinning option. This will be turned off to begin with, unless you've already activated it on Lollipop 5.0.



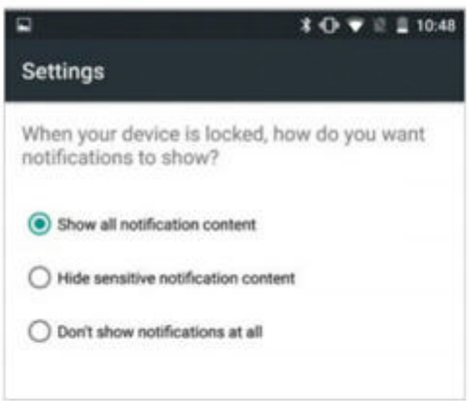
2 Unlock pattern

Tap on Screen pinning and then tap the slider to turn screen pinning on. You will then see an option to ask for an unlock pattern before unpinning. Tap that slider to activate this setting. This will automatically bring up an option menu.



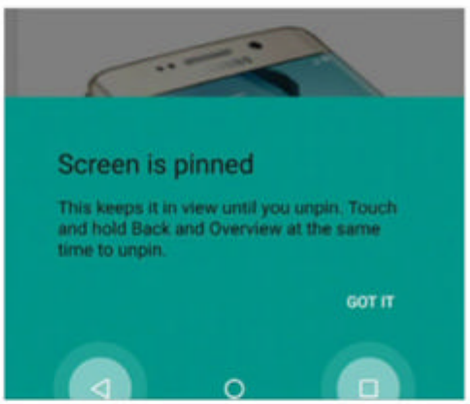
3 Choose your unlock code

Decide which of the unlock options you want to use and select that option – swipe isn't an option because it provides no real security. You can choose to activate the lock before start up, preventing a thief from even turning the phone on.



4 Choose security settings

Having set your unlock method you can then decide what notifications appear when the lock screen is in use. This ranges from all notifications to none. Choose your desired option and click done. This is all now set up.



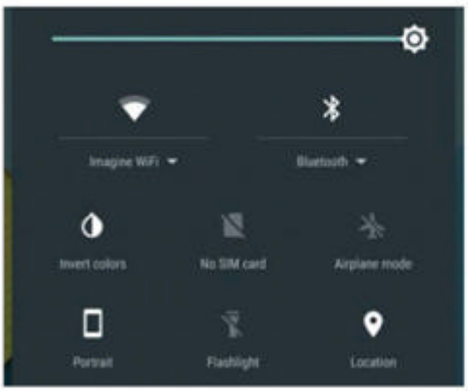
5 Pin screens

Press the Overview button to bring up the pages you have open and choose one to pin. If you try and exit the pinned screen by pressing Back and Overview, your unlock option will appear which you'll need to enter before proceeding.

Customise quick settings

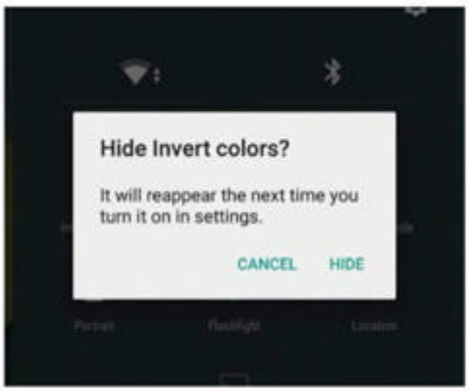
Find your way around your Android more easily with this new feature

The quick settings pull-down menu for Android devices has undergone a lot of changes over the last few iterations of Android, but this is one of the first for a while that can be considered really useful. Android 5.1 now has some drop-down arrows in your menu screen from which you can quickly find Wi-Fi spots and Bluetooth devices to connect to. It's not what you'd call groundbreaking but you will definitely appreciate it in the long term. You are also able to customise the settings menu by adding and removing icons to and from it. This quick guide will show you what changes have been made to the drop-down menu and how you can take advantage of them.



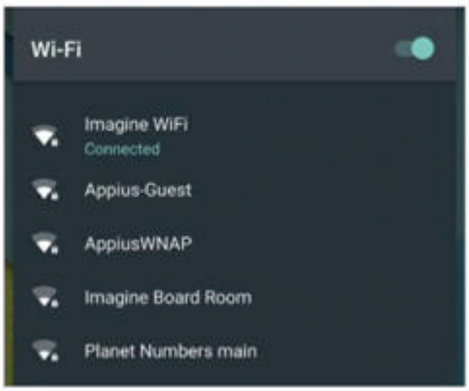
1 View menu

This is one of the first changes you are likely to notice about Android 5.1. As you pull-down the homescreen drop down menu, you should notice that under the Wi-Fi and Bluetooth headings is now a small arrow that wasn't there before.



2 Quickly join networks

Tapping on this arrow brings up a list of Wi-Fi networks in your area or available Bluetooth devices. This is similar to the list you'd usually get but found after just one click in the home screen rather than after a hunt in the Settings.



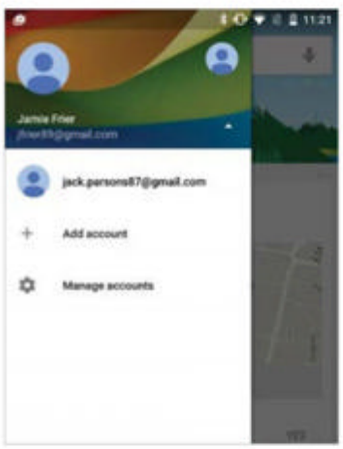
3 Customise quick settings

You can also edit certain things on the menu. Invert Colours and Wi-Fi hotspots, when activated via Accessibility and Wi-Fi respectively, appear on the Quick Settings drawer. Remove them by longpressing and selecting 'Hide'.

2 min guide

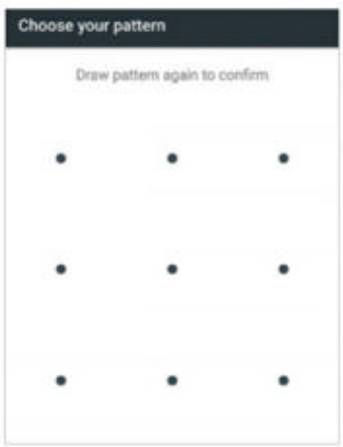
Make your phone thief-proof

Set a passcode to make sure your phone is unuseable if it has been stolen

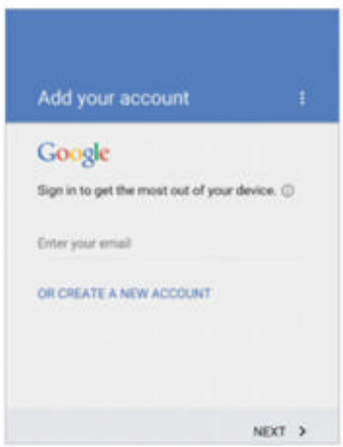


1 If your phone is new, set it up with your Google account by following the set-up instructions. If you are updating an existing phone, it's likely that you have already done this. This will then provide your automatic safety feature.

2 Pull down the homescreen menu and click the settings icon. Scroll down and press on the Security menu option. This will reveal a Screen Lock menu for you to tap. This will give you four options – Swipe, Password, Pattern and PIN.



3 Choose your preferred screen lock and set it, confirming that pattern or code. This will protect your device from thieves. However, Google has added a secondary security feature with Lollipop 5.1 to keep your data safe.



4 If your phone gets stolen, report it instantly and it will be locked down. Even if the thief does a factory reset, they can't access your phone as the new safety setting needs your Google account details to be entered before it'll give access.

App used » AppGratis **Works with** » Android 3.1.0 and up

Get nearly any paid app for free

How do you keep up with the latest apps and games without breaking the bank?

The cheaper the app, the better right? Unfortunately, this philosophy doesn't often apply to the latest apps and games, and if you like to be the first to play the latest games or enjoy the newest apps, there can be a heavy toll on your wallet.

So what's the answer? Well, the first place you should probably look is AppGratis, a service (with an associated newsletter) that presents a free version of a premium app or game every day, using information from Google Play and contact with app developers. While occasionally apps have heavy discounts, in most cases there is nothing to pay with the bonus of additional features not available in the standard release. The prospect of getting something useful for nothing should not be sniffed at, yet AppGratis is free!

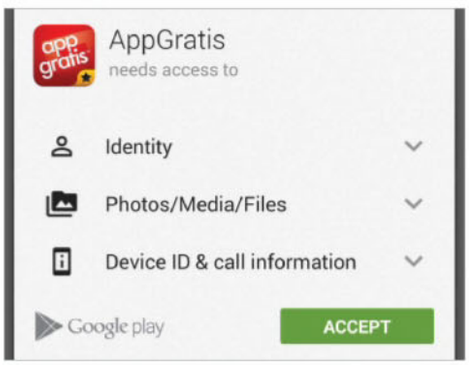
Before you take a look at AppGratis or the other methods explained here, spend a few moments making a list of the premium apps you want. This will prove invaluable when it appears on AppGratis.

Install an app
Tapping the Download FREE button will take you to Google Play, where you can go through the usual procedure to install the app. Should you be unhappy with it, don't worry. Just uninstall it in the usual way and forget about it

Disable alerts
AppGratis by default has various alerts settings enabled. These can prove irritating, especially if you have subscribed to the daily emails, so use the Settings option in the menu to disable them. AppGratis will still appear in the notification area on a daily basis regardless

Get more info
The main portion of the AppGratis window displays everything you need to know about the current offer, from the description and a screenshot, to its usual price and name of the developer. If additional features are included, these are also listed here

Explore offers
AppGratis will show you details of the offers from the previous few days. Usually these offers will have expired, but in some cases they may still be available. Either way, it serves as a useful reminder of the quality of apps that are on offer

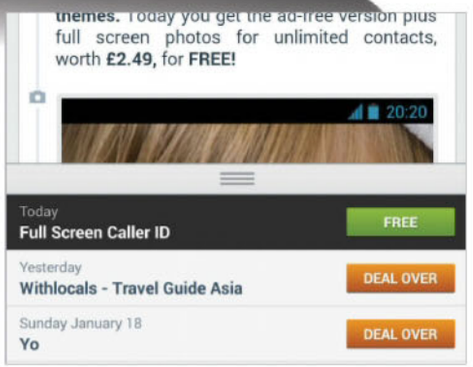


1 Install AppGratis

Although the service offers a newsletter, you'll want to get the latest deals as they're announced. The best way to do this is to install AppGratis on your phone. Free from Google Play, all you need to do is install the app and wait for the alerts to come through.

2 Review app deals

Not all apps will be of interest to you, so when you receive an alert from AppGratis, tap it to review the full details of the app. This won't take more than a minute to do and is worth the time so that you can discard the alert and wait for the next one which may be more useful.



3 Get app details

When an app you've been waiting for appears, check the description to ensure it offers what you want. Often AppGratis deals are free versions of premium apps but without all the functionality. Sometimes you get additional features, so check what comes with the offer.

5 quick tips: Save up for premium apps with Google Opinion Rewards

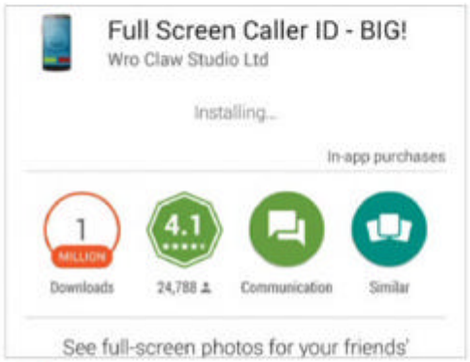
1 Google Opinion Rewards
Google Opinion Rewards is free to install from Google Play and you can get paid to complete surveys.

2 Answer questions for cash
With this app installed you can answer survey questions. Each question gives a small payment.

3 Who benefits?
Residents of the UK, USA, Canada and Australia can all benefit from these surveys.

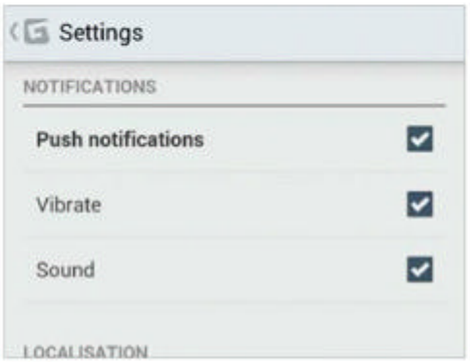
4 Patience is a virtue
Although you can save enough for expensive games, questions appear about once a week.

5 Spend Google Play credit
Earned enough to spend? Tap Spend your Play Credit to add rewards to your account.



4 Install discounted apps

If you're ready to install the app, tap the Download FREE button, then confirm the instruction by tapping 'Go!'. Google Play will open, so confirm the details one last time, tap the Install button and proceed. Congratulations, that's a free version of a usually premium app!

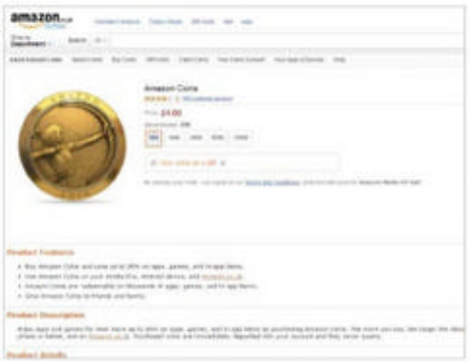


5 Set AppGratis options

The Settings button in the menu features options to toggle push notifications, vibrations and sound. As this isn't necessarily the type of app you want to be regularly updating (especially as there is an optional newsletter to subscribe to), you may find disabling these options a good idea.

6 Get Amazon apps

AppGratis isn't the only way to get free apps for Android. By installing some apps on the Amazon App store you can earn coins, which can then be exchanged for apps on the store. Usually the coins you earn are modest, but occasionally a bonus number of coins are awarded.

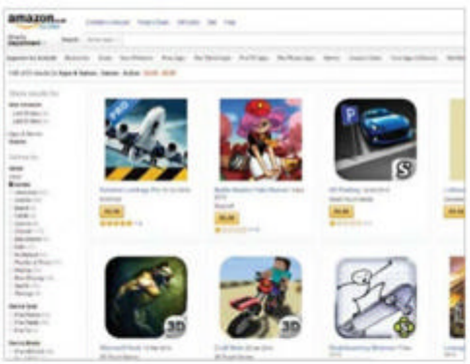


7 Make a purchase

As well as being awarded Amazon Coins when you purchase an app, in-app item or eligible game, you can purchase them too. This represents a 20 per cent saving on the full value of the coins, so while not free, it's a good way to bump up your balance if you wish.

8 Free Amazon apps

To cash in Amazon Coins, browse to the app or game you want and check the payment option. You should see a button labelled 'Buy now with Coins'. Click this to purchase and download. Apps from Amazon must be downloaded to your Android or side-loaded before installing.



9 Use Amazon Coins!

If you don't use your Amazon Coins within a year of gaining or purchasing them they will run out. To avoid this happening you need to either get more coins or spend those that you have already on the apps and games you've been looking forward to owning.

faq

Ask your own question online at **littlegreenrobot.co.uk**

I've seen other apps like AppGratis, can I use those?

AppGratis' success has spawned a number of copycats but not all of these are satisfactory. We've used AppGratis extensively for a couple of months now and spent some of this time comparing it with some of those clones. The result of this seems to be that the clones are copying AppGratis' offers, with developers perhaps even using AppGratis updates to prompt their own apps to update with similar information. Obviously this is less than satisfactory, which is why we recommend you stick with AppGratis.

Couldn't I just pirate apps instead?

Put simply, no. Pirated apps present a significant Android malware threat and it is an offence to download copyrighted material. All in all, this is a bad idea.

Need help?

Got a problem with your Android phone or tablet? Get in touch with us...

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/littlegreenrobot
Get help from our Facebook community

twitter
@lgrobot
Follow us to send your questions and thoughts

email
qa@littlegreenrobot.co.uk
Send your questions for our team of experts to tackle

App used » Yahoo Aviate Launcher **Works with** » Android 2.3.3 and up

Automate your homescreen

Use Yahoo's Aviate Launcher to make your homescreen effortlessly accessible

With the volume of apps that come pre-loaded on your phone or tablet coupled with the amount you download yourself, your homescreen could look pretty cluttered. Rather than spending ages sorting it out by dragging and dropping icons and widgets, you could download Yahoo Aviate. This simple launcher organises your apps by how often they are used, in alphabetical order and by category, so you're never far away from your apps. The launcher also offers news bites at times to suit you throughout the day, so you don't have to launch a browser to get your news. This tutorial shows you how to get Aviate set up on your smartphone or tablet and get your apps in the order that you want them.

> "If your most used apps happen to change, you can drop extra ones in and remove existing ones as you'd usually do"

Activate Aviate

Download Yahoo Aviate and when it prompts you to launch just once or always, select Always. This is reversible but just means that you get the Aviate launcher automatically when you turn on your device. Uninstall your previous launcher to make sure that it can operate without interference

Select most used

Select your most-used apps by tapping on their icons. The launcher will place these along the bottom of the homescreen where you can quickly access them. If your most used apps happen to change, you can drop extra ones in and remove existing ones as you'd usually do

Commonly used

The next step is to choose your most commonly used categories. These are the same as the categories on the Google Play store. After choosing the ones that you're most likely to need, Aviate orders them on the screen to the right of your homescreen

Personalise

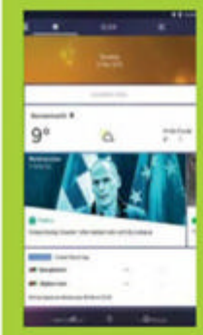
Alter your homescreen to suit you. Press and hold the middle of the screen to bring up the option to add widgets. These are pretty much all stock Android or Google widgets, such as Google Play or Drive. You can choose between shortcut icons or the programs themselves

Order your news

Swiping left of the homescreen brings up a news screen. Initially this is split up into sections such as Politics, News and Sport, but you can edit your preferences, change what time you get those alerts and add app collections to the screen to suit your preferences

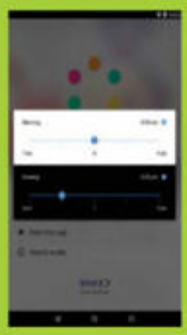
Make Aviate personal to you

Explore the different things you can do to personalise your home screen even more



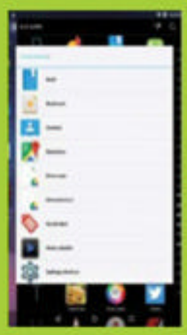
Location information

Set your location for work or home and Aviate will automatically bring up relevant news when it detects you've reached that place. These can be in the form of travel information or alerts regarding appointments.



Set your times

You can choose what time you receive your news. If you want your news delivered on the way to work and on the way home, then set these timers by clicking on Today, choose a story, click Settings and set the Notification sliders.



Create shortcuts

You can create shortcuts within your apps list. Go to the A-Z list and click the top-right. This brings up a wide list of options, such as saving a particular destination so that you can get to it quickly and easily directly from your homescreen.

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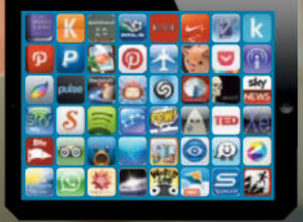

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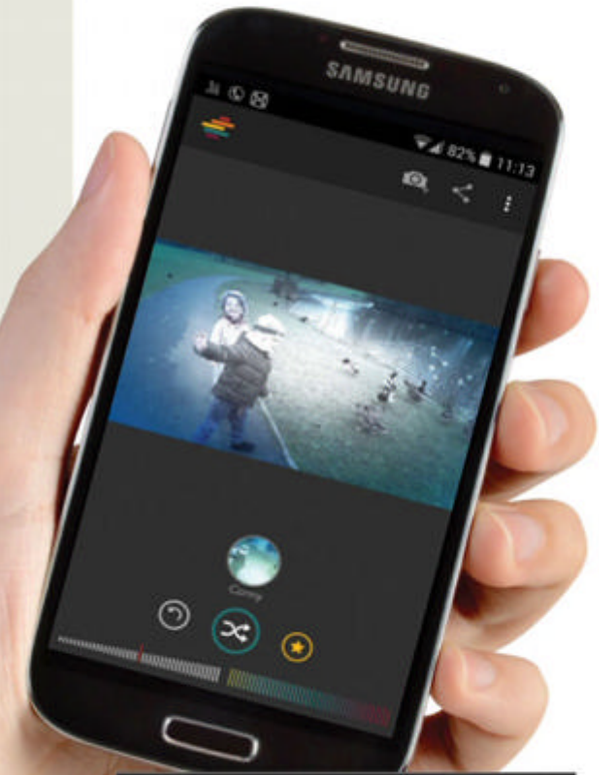
App used » Shift **Works with** » Android 4.1 and up

Create your own range of Instagram filters

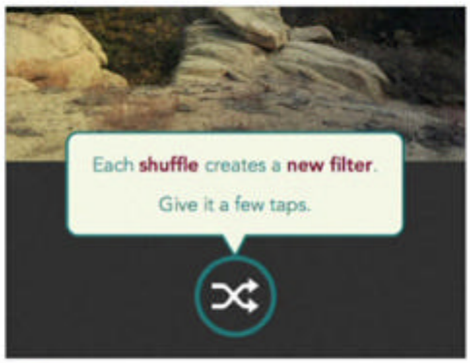
Bored with Brannan? Annoyed with Earlybird? Make your custom photo effects instead



Creating a stunning photo is as much about composition and shape, as it is about getting the filter right. Since Instagram, smartphone cameras have been able to compete with DSLRs, while adding filters in post-processing.

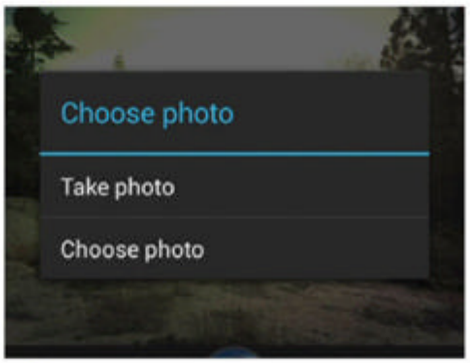
But if you use Instagram or any of its rivals, what you're getting from the filters is what someone else wants you to have. These curated filters are fine for beginners, but don't cover every eventuality. How could they, there are more than 24 types of photo!

The solution is to create your own filters on a photo-by-photo basis, something made possible with Shift, a free app that offers textures, blends and colours that can be combined to create stunning results, then saved and reused on other photos. Shift also features a random shuffle and three touch points where the custom filter can be created.



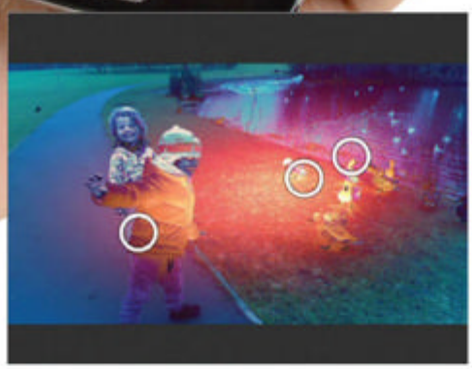
1 Get to grips with Shift

Intended for devices running Android 4.1 Jelly Bean and later, Shift is free from Google Play. Although ad-supported, a 65p in-app purchase will remove these. Upon first launch you'll see a demo of the shuffle feature. You can learn a bit more about the app at **shiftbypixite.com**.



2 Begin editing photos

Before you create a custom filter with Shift you'll need a photo to work with. Tap the Choose photo button and select Take photo to capture a new snap with your camera, or Choose photo to browse the Android gallery for a suitable image to start with.



3 Shuffle for filters

If you're looking for a striking look but don't have the time to start from scratch, use Shuffle. With the new image open in Shift, tap the two-arrowed button. This will move the pinch points around the image, applying a different filter effect each time.

4 Place your pinch points

To create your filter, begin by positioning the pinch points. These can be dragged around individually with one finger, or moved as a group by tap-and-holding the two outermost points. You can also pinch the points to resize them, affecting the depth and concentration of the filter effect.

5 Creating your filter

Filters are created by adjusting the two sliders at the bottom of the screen. On the left you adjust the strength of the filter, while on the right you can apply a range of colours. Combined with the position of the pinch points, you can create some remarkable effects.

5 quick tips: Get great results in Shift with Pinch Points

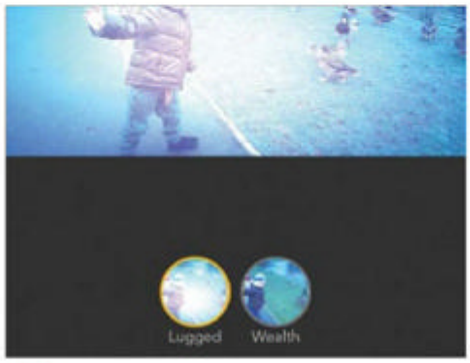
1 Place your pinch points
Correct placing of the pinch points will help to focus the filter effect that you are creating.

2 Pinch to focus the filter
To focus the filter event in a particular area, pinch the points slightly closer together.

3 Pulling pinch points
For a milder effect, pull the pinch points apart, spreading the impact of the filter.

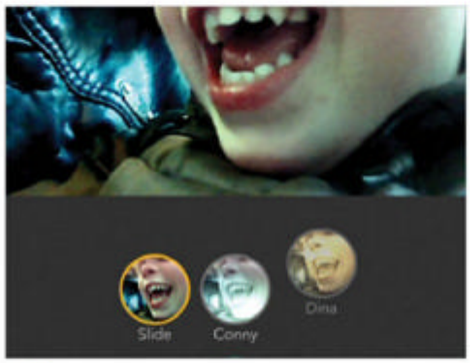
4 Rotating pinch points
As well as pulling and pinching the pinch points, they can also be rotated to turn the image.

5 Make use of triangles
Understanding the direction of light and different types of triangle can help create eye-catching filters.



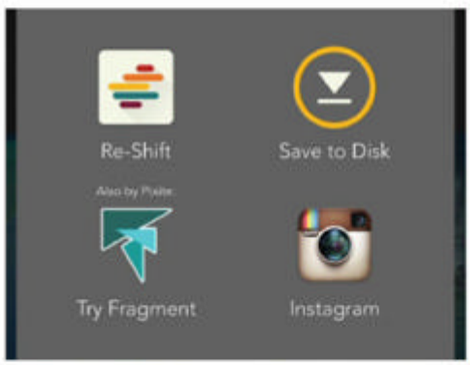
6 Save your custom filter

When you are happy with the results, tap the star button to save the filter. A name will be given to the filter, along with a small preview of the current image as a preview. As filters are created they will be added to the bottom of the screen where they can be scrolled through.



7 Delete and rearrange

The undo button will discard any changes you have made to your filters, but the options for deletion go beyond this. To discard a filter completely, swipe it upwards. If there is a filter you're using regularly, you may wish to rearrange the list. Tap, hold and drag to reorder.



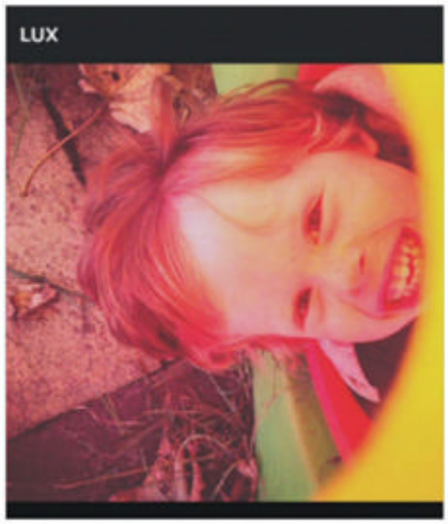
8 Share to Instagram

Tap the sharing button to send the image to Instagram, where you'll be able to perform the usual crops and edits and then share with your network. Instagram will offer you the chance to set a filter, which would probably be overkill, so just set it as Normal before proceeding.

2 min guide

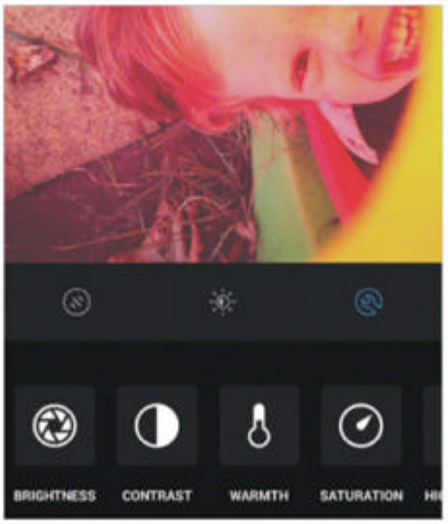
Post-processing in Instagram

Despite the various filters in Instagram, modest edits to images are possible using Lux mode and other features



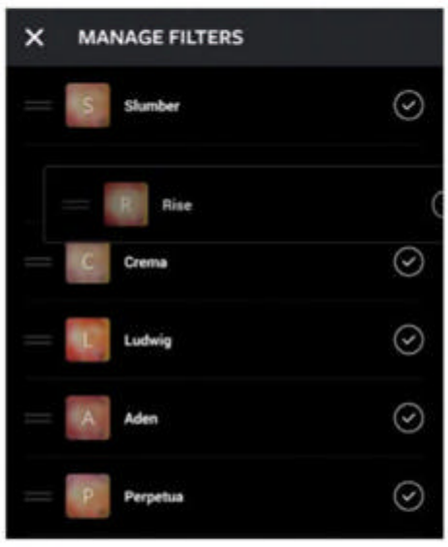
1 Edit images with Lux

After opening your favourite image or snapping a new photo in Instagram, select Lux – the middle button below the image preview. Drag the slider to adjust the setting and when satisfied, tap the tick to confirm. This is a subtle adjustment so observe the changes carefully.



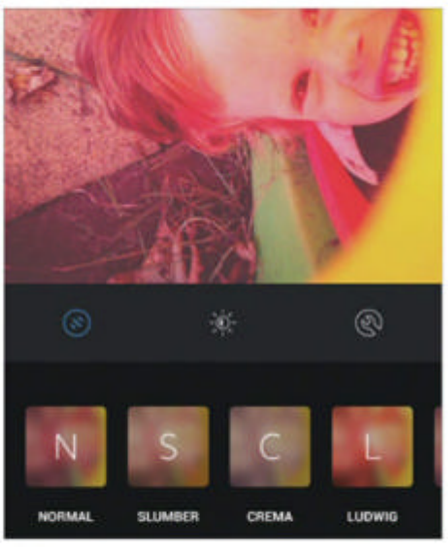
2 More filter edits

Instagram also offers a tools menu, with options to adjust Brightness, Contrast, Warmth, Saturation, Highlights, Shadows and Sharpen, and advanced options like Tilt Shift and Vignette. All have a slider interface for making changes. Use these settings to create striking results.



3 Manage filters

Some Instagram filters may be used more than others. To save time scrolling through the list, open the Manage Filters screen which you'll find at the end of the filters list. Here you can drag filters into your preferred order, or tap to toggle them off and on.



4 When to mix filters

As mentioned previously, creating a new filter in Shift and then importing the post-processed image into Instagram is unwise. This doesn't mean that you shouldn't do it, just that the results can be disappointing. Successful filter mixing is possible, but only with trial and error.

App used » Snappy Converter **Works with** » Android 4.0 and up

Convert currencies with your camera

Quickly and easily convert over 150 different currencies, using your device's camera and Snappy Converter

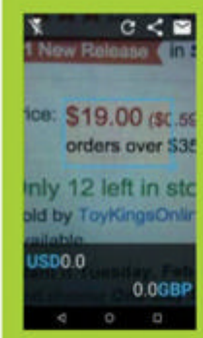
There's no shortage of currency converting apps available for Android, and you can even convert currencies using the Google search engine – simply typing '10 dollars in British pounds' into the search bar is enough to perform a currency conversion.

Snappy Converter is an Android app that makes it even easier to convert one currency into another. Simply point your camera at the value you want to convert and the app will automatically translate the value into your choice of over 150 currencies. This is especially useful when you want to quickly and discreetly check the value of something, for example when you're in a supermarket or looking at the menu in a restaurant. You can download Snappy Converter for free from the Google Play store.

> "Double-check that Snappy Converter's blue box is positioned perfectly"

Converting currencies with your camera

If you're pointing your camera at an amount and the app isn't recognising it, try out these tricks



Resize the box

Double-check that Snappy Converter's blue box is positioned perfectly over the currency that you want to convert. Try resizing the box so that the value and the currency symbol are the only bits of text visible in the shot.

Close and relaunch the app

If you've been pointing the camera at an amount for a while without success, it may help to close the app and relaunch it. Sometimes Snappy Converter immediately recognises the amount upon relaunch.

Check your lighting

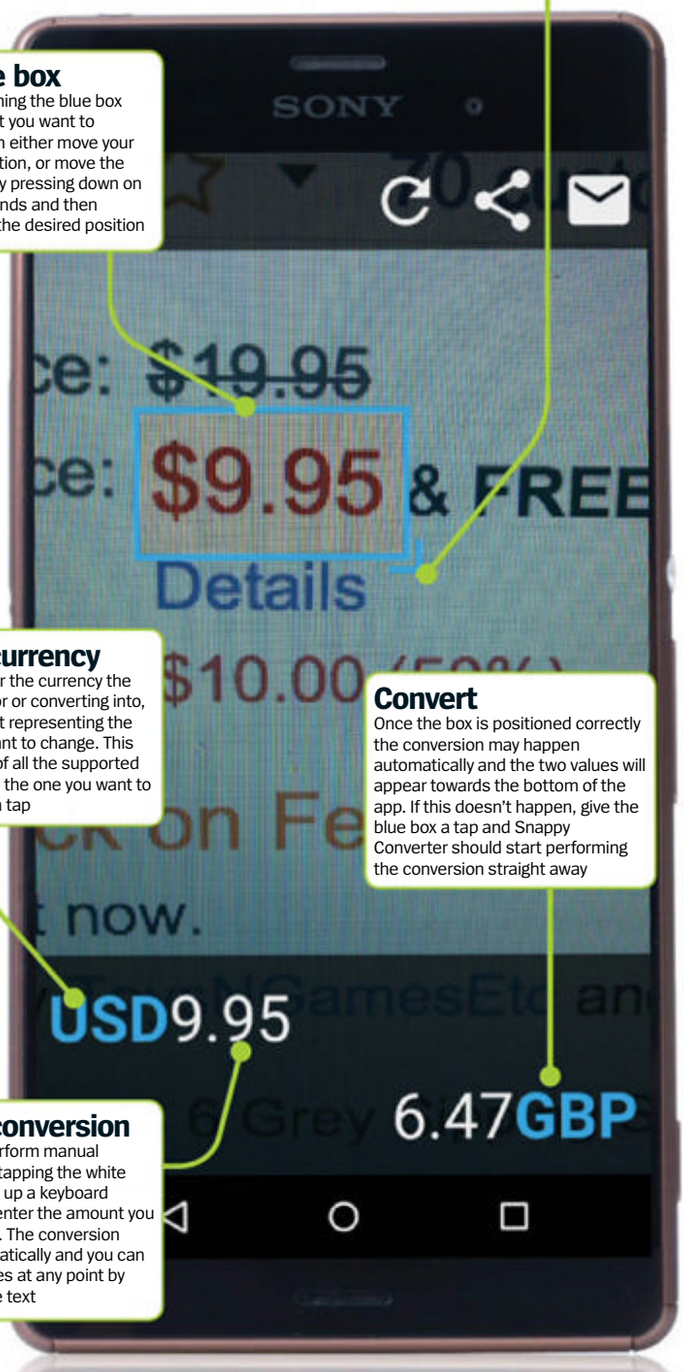
Snappy Converter can access your camera's flash, so if the lighting isn't great, try turning the flash on, by tapping the 'flash' icon in the toolbar. Alternatively, if you're getting some glare try disabling the flash.

Resize the box

You'll need to resize the blue box so it contains only the amount you want to convert and the attached currency symbol. To resize the box, long-press on the little arrow in the bottom-right corner and then drag until the box is the desired size

Move the box

Start by positioning the blue box over the amount you want to convert. You can either move your device into position, or move the blue box itself by pressing down on it for a few seconds and then dragging it into the desired position



Tap the currency

To change either the currency the app is looking for or converting into, tap the blue text representing the currency you want to change. This brings up a list of all the supported currencies. Find the one you want to use and give it a tap

Convert

Once the box is positioned correctly the conversion may happen automatically and the two values will appear towards the bottom of the app. If this doesn't happen, give the blue box a tap and Snappy Converter should start performing the conversion straight away

Manual conversion

You can also perform manual conversions by tapping the white text. This brings up a keyboard where you can enter the amount you want to convert. The conversion happens automatically and you can switch currencies at any point by tapping the blue text

App used » CM Apps **Works with** » Android 4.2 and up

Get CyanogenMod apps without root

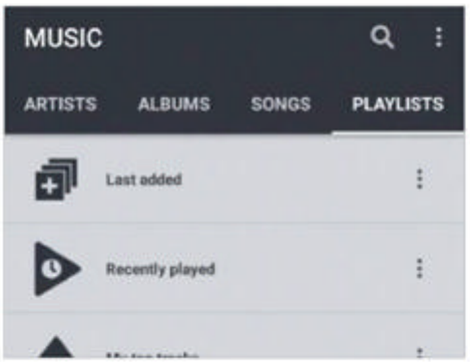
Rooting your Android device may open up lots of new possibilities, but it can also be a scary process – particularly if you're new to rooting or your device is brand new!

If you want to get a taste of the rooted experience without the risk of bricking your device, you can easily download and use some of the apps that would normally only be available to rooted users. CM Apps is a free Google Play download that gives you access to a maximum of 10 apps, wallpapers and a custom launcher that usually only come pre-installed with the popular CyanogenMod custom ROM.

We will give you a step-by-step guide on how to use CM Apps to download any of the 10 apps and other CyanogenMod goodies, before showing you how to give your device a complete CyanogenMod makeover using the launcher, wallpapers and the CyanogenMod widget – all with absolutely no root required. So you can keep your device well and truly safe from bricking.

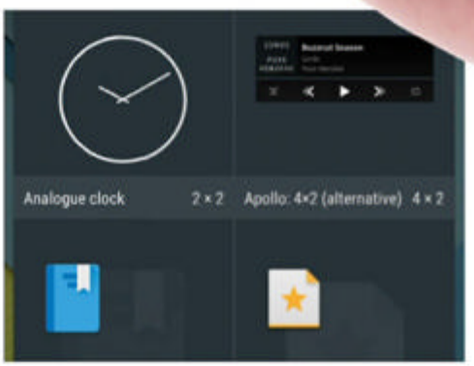
1 Browse CM Apps

First, launch CM Apps. The main screen displays a list of the different CyanogenMod apps you can install. To install an app, give it a tap and follow the on screen instructions, tapping Next and OK where appropriate until you see an Install option.



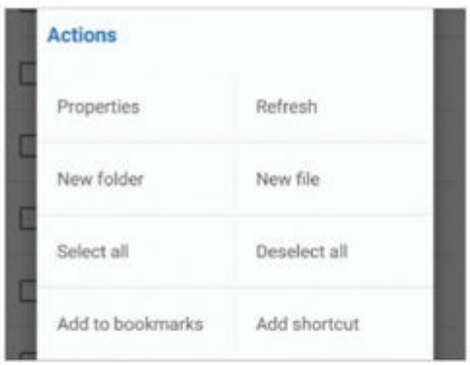
2 Apollo Music player

One app to download is the Apollo Music player. You can browse your music by Artists, Albums, or Songs, by tapping the tabs. Also browse the default playlists or make your own by tapping the dotted icon and selecting New playlist.



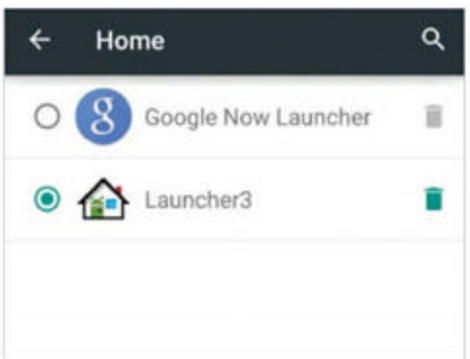
3 Add the Apollo widget

The Apollo Widget lets you pause, play and skip tracks from your homescreen. Press an empty section of homescreen, tap Widgets and long-press on the Apollo widget. It will appear on your homescreen for you to move and resize.



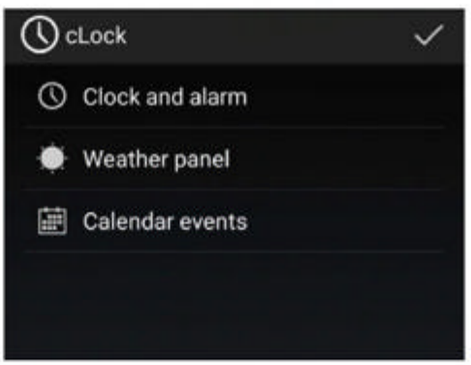
4 Create bookmarks

File Manager is a straightforward file explorer app that lets you bookmark areas of your device's file system for easy access. To create a bookmark, go to the area you want to bookmark, tap the dotted icon and select 'Add to bookmarks.'



5 Use Trebuchet Launcher

Download the Wallpapers, Clock Widget and Trebuchet launcher apps. Set Trebuchet as your launcher in Settings>Home>Launcher 3. Add a CM wallpaper by long-pressing your homescreen, then selecting Wallpapers>CM Wallpapers.



6 Create a cLock Widget

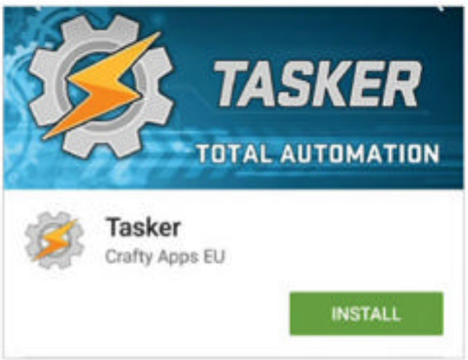
Once you've chosen your CM wallpaper, add the cLock widget to your homescreen by long-pressing and then selecting Widgets>cLock. Customise the widget, then tap the checkmark and the widget will appear on your homescreen.

App used » Pushbullet and Tasker **Works with** » Pushbullet: Android 4.0 and up, Tasker: Varies with device

Take photos remotely on your Android camera

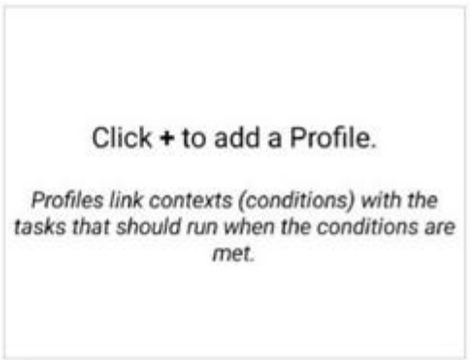
Use the Pushbullet and Tasker apps to trigger the camera on your device

There are plenty of apps on the Play store that let you turn your Android phone or tablet into a trigger for your DSLR camera, but if you're looking for something to trigger the camera on your Google-powered device, then the pickings are slimmer. But fret not, because in this tutorial we'll guide you through setting up a system that lets you take photos remotely. You'll need a couple of Android devices, or an Android device and a PC, and you will need a couple of apps installed too. But if you don't mind a little bit of faff, then you can set up a clever remote control in less than an hour. Here we'll guide you through getting everything set up, show you a few shortcuts that will save you some time in the long run, and give you a few quick tips to make sure that everything's running smoothly. When you're ready to go, head to the first step.



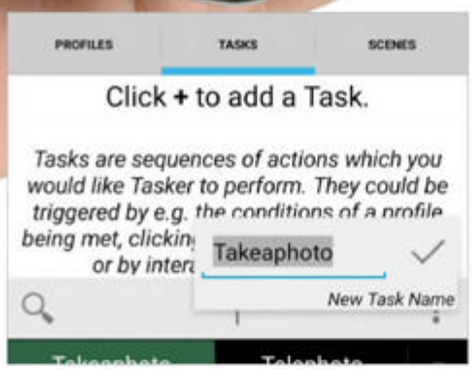
1 Get the apps

You're going to need two apps and a couple of devices to make all of this work. First, download Tasker and Pushbullet onto one of the devices, and then install Pushbullet on the second. You can use a PC if you'd prefer. Pushbullet is free, Tasker is £2.99/$2.99.



2 Go to Tasker

Now, on the phone that you want to take the photo, you're going to have to create a couple of tasks. One to capture the photo and one to work as a remote trigger. We will handle the photo one first. Swipe to the tasks pane and then tap on the + button.

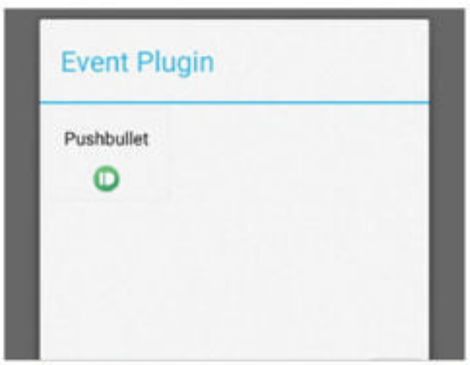


3 Set the snap

Name the task, then tap the + button to add an action. Tap Media and then tap Take Photo in the bottom-right. Set a filename for the photos and change the Naming Sequence to either Series or Chronological, whichever you'd prefer. Now hit the back button to save the task.

4 Check the bullet

Next we need to create a separate profile in Tasker that uses the photo task that we've just created. First though, you need to make sure that you've got Pushbullet set up and installed on your device, and that you've given it access to everything that it needs access to.



5 Make the profile

Swipe to the profile tab of Tasker and tap the + button to add a new one. When you're prompted, tap that you want to create an event. When the list of possible events comes up, tap plug-ins, then tap on Pushbullet. Now tap on the pencil button to configure.

5 quick tips

Quick tips to ensure you're getting the most out of your remote control

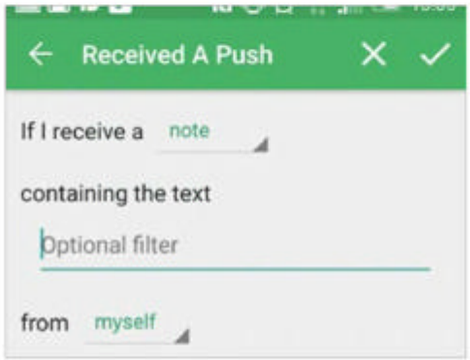
1 Set your camera right
Always make sure the device that's taking the photo is pointing in the right direction.

2 Check the resolution
Ensure the camera is taking photos at the right resolution by running the Tasker task.

3 Let your friends help
You can set it so the push can come from a friends phone or your own phone device.

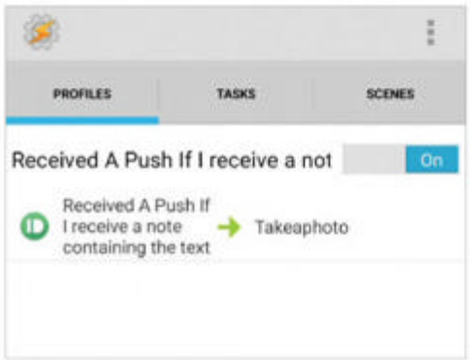
4 Change the settings
You can tweak the settings so that your phone takes the photo in a specific way of your choice.

5 Good naming convention
Name the photos sensibly so they're easier to distinguish from other items in your gallery.



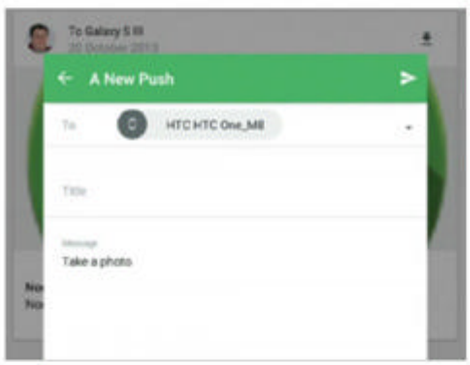
6 Choose the text

Now you need to pick some text to trigger your camera. Something like 'take a photo' should do nicely. Also, set the push to dismiss once it's arrived too. Tap on the tick button to save the changes and you'll be taken to the configuration page. Tap back to save.



7 Attach the action

Lastly, you will need to attach the action we created at the start of the tutorial to the profile. When you've pushed back you should get a drop-down list of tasks to choose from. Pick the one you made earlier and you're basically all done with this device for now.

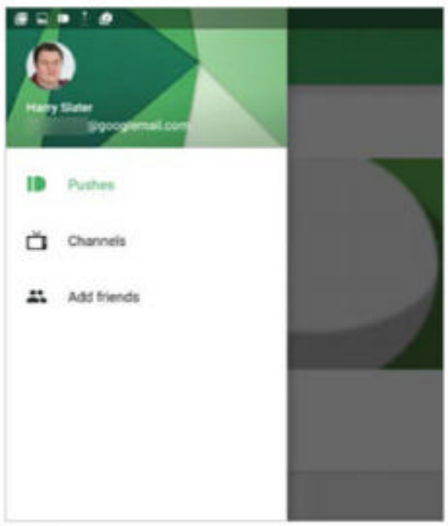


8 Get the other one

Now pick up your other Android device and use Pushbullet to send a note to the first one with the text you set as the trigger in the profile. If everything's gone to plan, you should have just used one device to tell another device to take a snap. It's as simple as that!

2 min guide: Set up a button with Tasker

Create a button on your second Android device so you don't have to send the same message over and over again

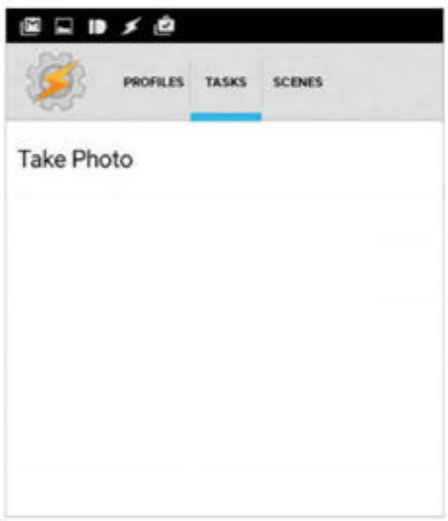


1 Download and install Tasker

First, download Tasker on your second device. Once installed, head into the Tasks panel and tap on the + button. From there tap on Plugin, then Pushbullet to create a new task for the app. Now tap on the pencil icon in the top-right.

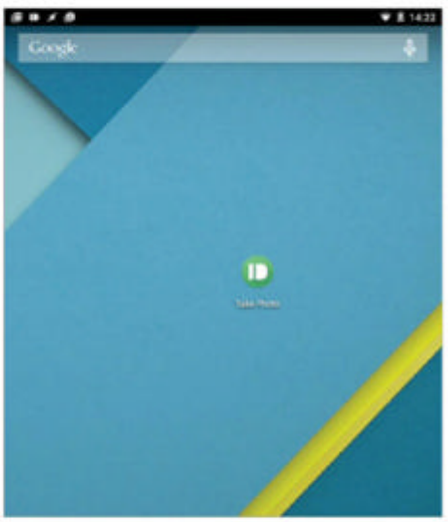
2 Configure the message

Next you need to configure the message that your button is going to send. Select the device you want to send it to from the drop-down menu, and then insert the text you selected in the earlier tutorial. Remember that it will be case sensitive so don't make any mistakes.



3 Save and back out

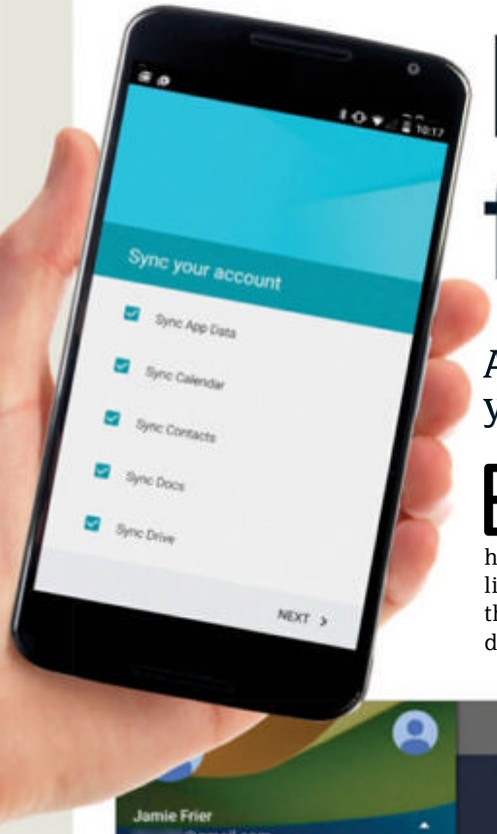
When you've saved the task, back out of Tasker and make sure it is properly closed. Then add a widget somewhere on your homescreen. When you're asked which task to set it to, select the one that you've just created. If it all works you now have a one-touch remote photo button.



4 Set an icon

You will need to set an icon to display as part of the widget, and the name of the task you assign will also be displayed below. Make sure you use something memorable and obvious, and try to avoid just using the Pushbullet app icon as it's really easy to get muddled up.

App used » Dropbox **Works with** » Android 4.0.3 and up

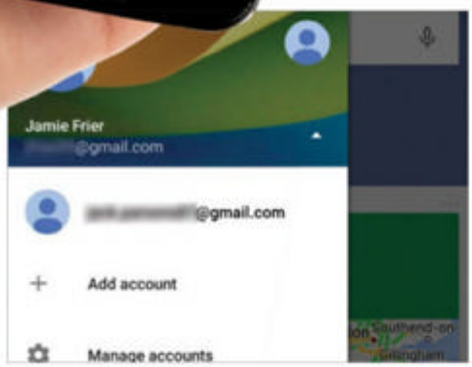


Effortlessly sync files across devices

Access files instantly across your phone, tablet and PC

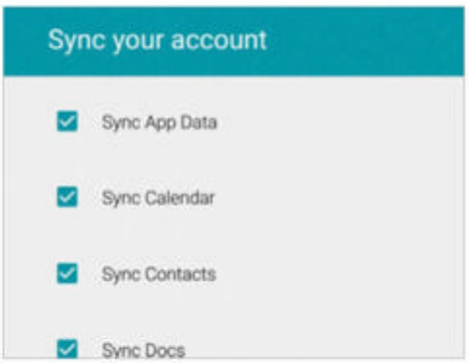
Even though tablets and smartphones are increasingly similar in size, they are used for quite different things. Phones are handier for taking photos, while a tablet is more likely to be used for work purposes. However, there will come a time when you need to view a document on your phone that had been typed on a tablet, or show a friend a photo on your tablet that you took with your phone. Therefore, it's useful to sync your devices so you can switch between them without any problem.

There are a number of ways to sync your devices together so you don't have to take all of them with you wherever you go. This tutorial shows you how to sync your various accounts as well as taking you through Dropbox, the app that sends bulky files but also stores them so you can view them on any synced device.



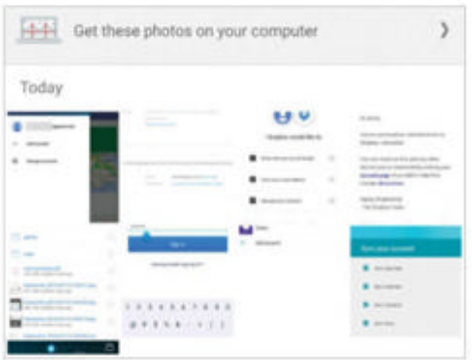
1 Add an account

If your device runs Lollipop, swipe right for the Google Now page, press the hamburger menu and select Add Account. If your device is running on KitKat or earlier, go to Settings>Account>Add Account and enter your email and password.



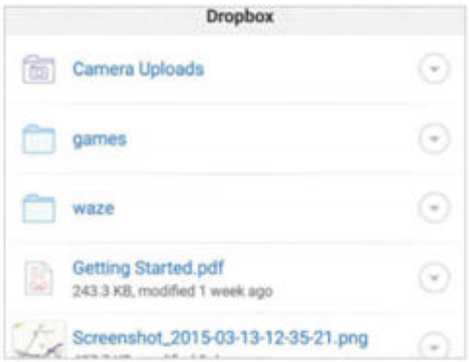
2 Sync your accounts

You'll be presented with the option to sync all of your accounts, such as app data, documents and your contacts. If there's anything you don't want to sync, untick the box before pressing Next. Repeat with your other devices to sync them all.



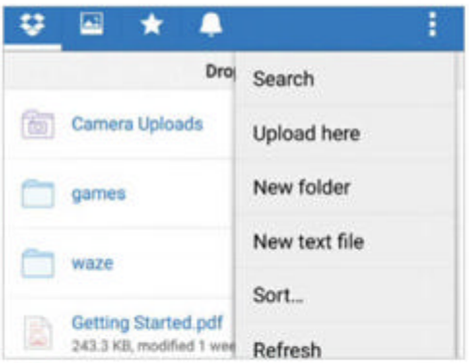
3 Install Dropbox

Now that your email and phone accounts are synced, what if you want to view files without sending them across manually? Go to the Google Play store and download Dropbox for all of your devices. You can download it for your PC as well.



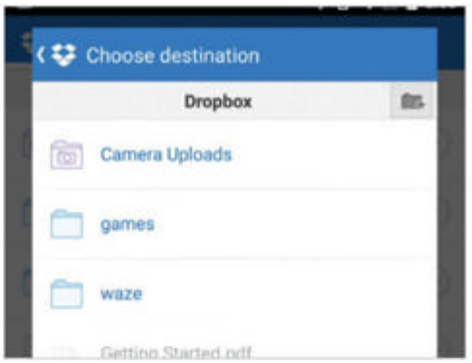
4 Set it up

As with normal account syncing, once you've logged into the same account on all devices, you should see all the files on the account. Upload a file on one device and you'll see it on the other. It might need refreshing to load.



5 Create a folder

If you need to transfer a number of files, create a folder in Dropbox. Press the lower-left button on your Android device and click Create Folder. Give it a title and click Create. Press and hold your file and move it into the folder.



6 View files

Load up Dropbox on your other device and then click on the folder and the file that you want to view. As Dropbox gives you a large size limit, you can share anything from text files to whole movies quickly and easily!

App used » Manual Camera **Works with** » Android 5.0

Manually control your camera

Use the Manual Camera app to get control over your camera

Before Lollipop, third party camera apps still used the device's built-in camera software. But with the release of Android 5.0, developers can create camera apps that control the sensor, lens, white balance, shutter speed, flash and other areas of the camera.

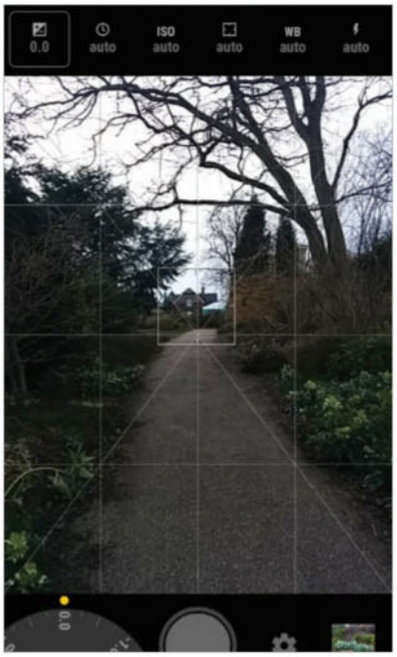
Manual Camera is one of the first apps that takes advantage of this new functionality, to give you direct control over your device's camera. You can purchase Manual Camera from Google Play (£2.09/$2.99), although it requires Lollipop's Camera2 API to be properly implemented on your device, so currently only works correctly on Nexus 5 and 6 smartphones.

1. Point and click

When you launch Manual Camera it opens in full auto mode, which is similar to the point-and-click functionality of Android's stock camera – but with increased shooting speed. After you've taken a photo, you can view it in your gallery by tapping the image preview in the app's bottom-right corner.

2. Manually adjust the settings

Along the top of the app, you'll find all the buttons for controlling your camera's flash, white balance, focus distance, exposure, shutter speed and exposure compensation. All of these options have an auto setting, or you can adjust them manually by tapping on the setting you want to alter and manipulating the dial in the bottom-left corner.



3. Reset shooting parameters

If you've made manual adjustments to any of the options along the top of the screen and want to resume using the defaults, simply long-press on the option you want to reset. After a few moments, a yellow 'Auto...' message will appear and you'll know Manual Camera has reverted to the defaults for this shooting option.

4. Additional Features

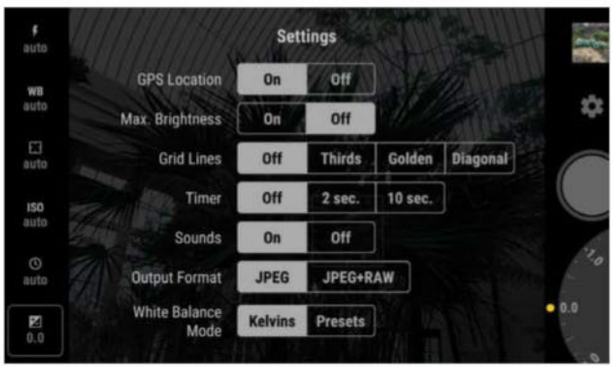
In addition to the shooting, you can also manipulate manually. Manual Camera has some additional features that you can enable and disable, including the ability to shoot RAW images. To access these additional features, tap the cog icon at the bottom of the screen.

[FIG 5] You can add three kinds of guiding 'gridlines' to Manual mode. Choose from thirds, golden or diagonal. You add, change and remove gridlines in the app's Settings area

5. Go to Output Format

To start shooting RAW images, find the Output Format section and tap 'JPEG+ RAW'. In this menu, you'll also find options for activating a timer, geo-tagging your photos using your Android device's GPS information, turning maximum brightness on for outdoor visibility, and adding a selection of gridlines to help guide your shots, including 'rule of thirds' gridlines. Here you can also activate 'Kevlins' to control the colour correcting of your images, and use as an alternative to a standard white balance.

[FIG 4] You can access additional features in Manual Camera's settings page, including adding a GPS location to your photos, enabling and disabling the timer and changing the camera's output format



faq

Ask your own question online at **littlegreenrobot.co.uk**

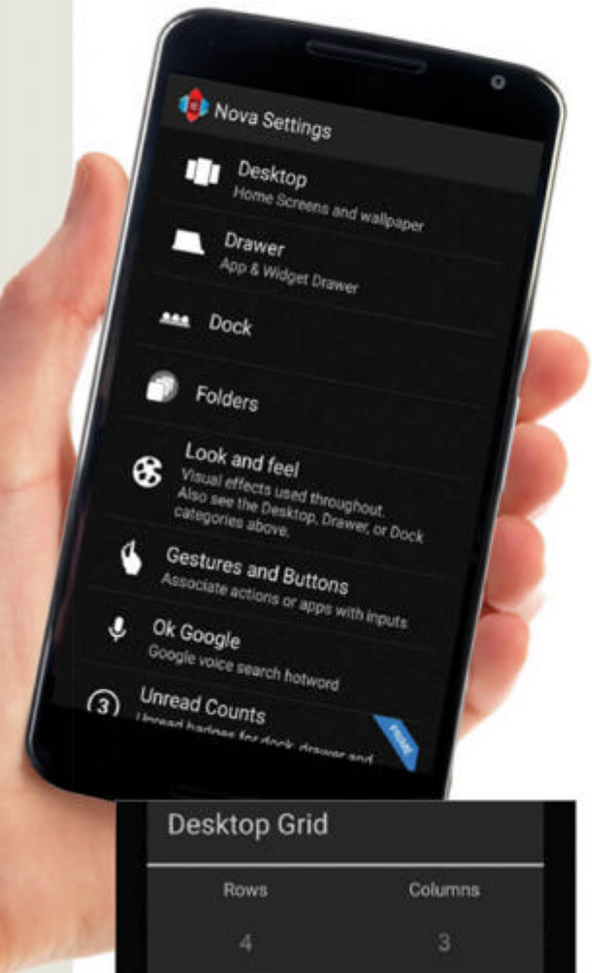
Will Manual Camera work on my device?

To test your device's compatibility and check if it has implemented Lollipop' Camera2 API, download Manual Camera Compatibility from Google Play.

App used » Nova Launcher **Works with** » Android 4.0 and up

Reskin your Android device pixel-by-pixel

Radically change the look of Android using a range of different launcher apps

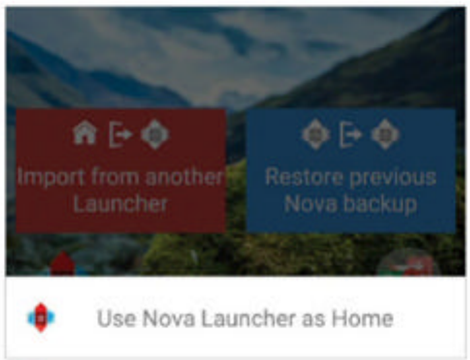


Launcher apps install themselves under every app on your smartphone and tablet, replacing Android's default homescreens and taking over operations whenever you press the home button.

These launchers can create completely different looks from those coded by Google (or Samsung, Sony, HTC or LG). They give you more control over how your homescreens and menus show up, and they're fun to use.

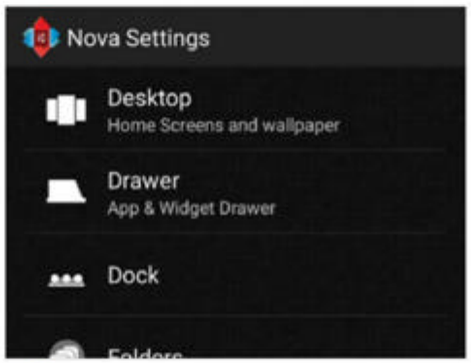
With Android 5.0 Lollipop launcher apps are natively supported, which means you can view and manage them from the Settings menu. Here, we will use Nova Launcher and Themer, though there are alternatives on the Google Play store that you can check out.

Which one suits you best will depend on what you want to do with your device and the time you have to customise it. Even if you're experimenting, you can create great looks.



1 Set Nova as the default

Once Nova Launcher is installed, tap the Home button and you'll be asked if you want to switch from the Google Now Launcher (you do). Tap Home again and you can confirm Nova Launcher as the default. Head to the Home menu in Settings to change this at any time.

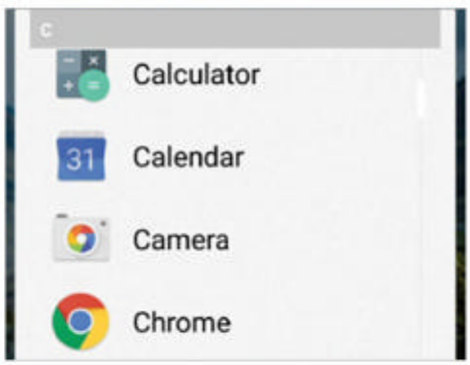


2 Configure Nova's settings

Use the Nova Settings icon on the homescreen or in the app drawer to set up how you want Android to look. There are a wealth of options to choose from, covering everything from the presence of the Google search bar to the height of the app dock.

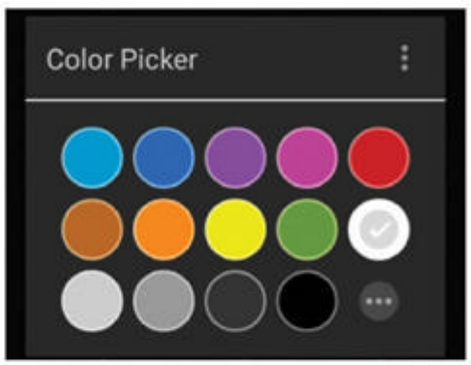
3 Set up your homescreens

The Desktop menu is a good place to get started. Here you can change the shortcuts grid, adjust the margins on your homescreens, show or hide the Google search bar, change the way that menus and wallpapers are displayed, and make any widget resizeable.



4 Alter app drawer options

Next up is the Drawer menu, where you can alter the appearance of the App and Widget Drawer. You can switch to a long list of apps, for example, rather than screens that you swipe through, as well as change the transitions, tab styles, colours, shadows and more.



5 Pick new colours

Look and feel is the menu to head for if you want to change some key elements of Android's appearance with a few taps. It's possible to change icon themes and sizes, adjust the scroll and animation speeds, and turn off the notification bar if you don't like it.

5 quick tips: Make the most of your launcher apps on Android

1 Switch launchers
Head to Settings and then tap Home to see the installed launchers and switch between them.

2 Find content
There are plenty of icon packs and theme skins online. Run a search from your laptop.

3 Get involved
You don't have to be a creative visionary to make your own skins and there's help online.

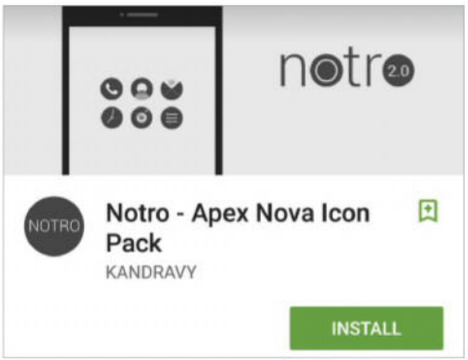
4 Load widgets
Don't forget the widgets that come with many themes, as they usually offer unique functionality.

5 Go back
Don't be afraid of experimenting with your launcher apps, as you can quickly reset your changes.

App used » Themer **Works with** » Android 4.1 and up

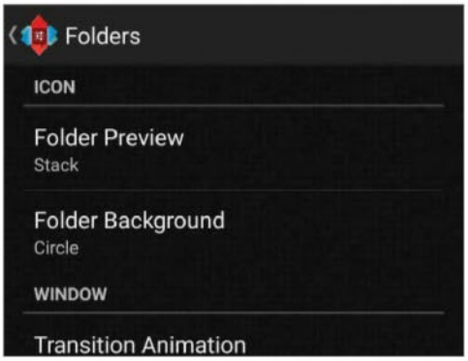
2 min guide: Add new skins with Themer

Themer is another launcher app that comes with plenty of home screen skins for you to choose from



6 Download icon packs

Have a browse around the Google Play store and you'll find plenty of Nova Launcher icon packs to download and use for free. These can substantially change the way that your phone or tablet's interface looks, and you can even design your own if you want to.

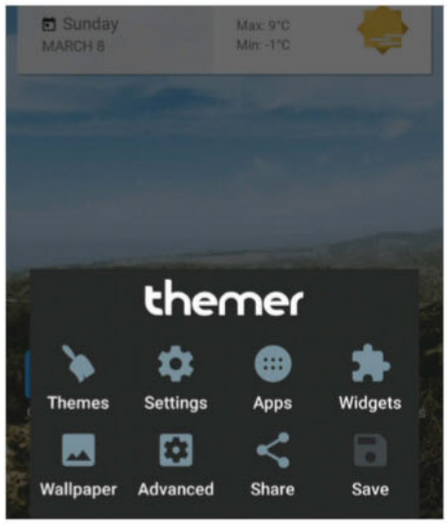


7 Configure folder settings

Nova Launcher also lets you tweak the way that folders work on your various homescreens. By going to the Folders menu you can change how folder icons are shown, the colour of the backgrounds, the label icons and the transition animations to suit your individual tastes.

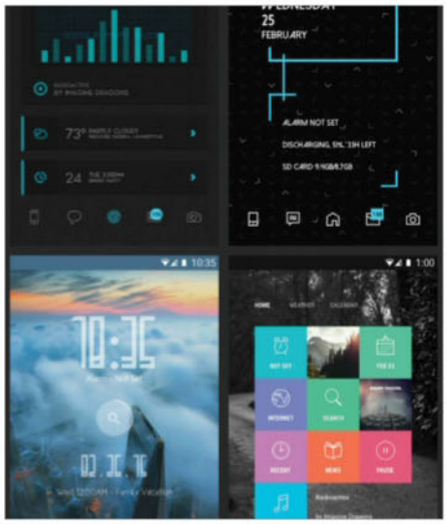
8 Upgrade to Prime

Some of Nova Launcher's best features – including unread counts on app icons and gesture control – are only available if you upgrade to the Prime edition of the app, which you can do from inside the launcher app. It is currently available for £2.50/US$4.



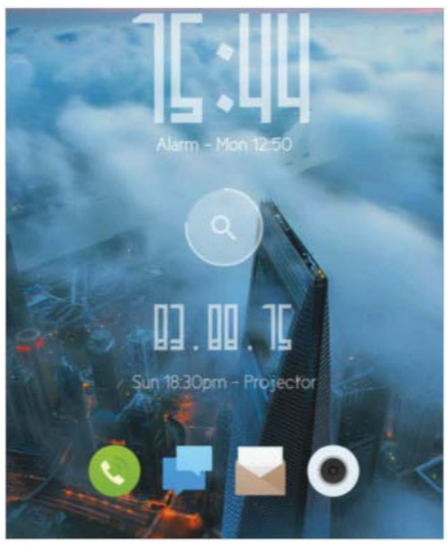
1 Get started

Once you have installed Themer on your device you'll see the tweaks it makes to your wallpaper, icon and homescreens. A long-press on any blank area of the homescreen brings up the settings panel, where you can configure Themer and change between skins.



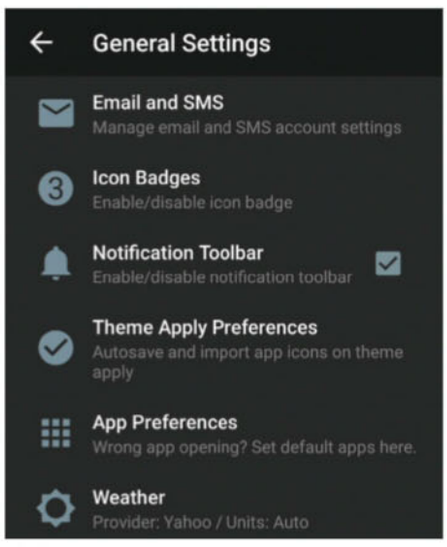
2 Choose themes

Tap on Themes to bring up the different skins made by the Themer community. You can view the newest themes first, the ones that are currently trending, or search by category. Tap on any theme and then choose Apply to set it up on your device.



3 Apply themes

You'll see that you can give your Android phone or tablet a totally different look, although you are limited to the themes created by other users, unless you want to dedicate the time to building your own (full instructions on how to do this can be found on the Themer website).



4 Adjust the settings

Bring up the Themer menu and choose Settings to change different configuration options, such as preferences for email and SMS widgets, the apps that launch as defaults, the news and weather providers being used, and unread counts for on-screen icons.

FOR THE GNU GENERATION

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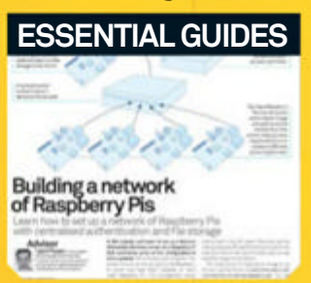

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50 HACKS APPS AND ROMS

Essential tools for super-users to upgrade out-of-the-box Android

It's sometimes pretty easy to get overwhelmed by the sheer number of hacking, rooting, and app options that Android offers. Which hack is the best way to go? Which ROM is the best one for the way you use your phone or tablet? Which of the rooted apps is going to save you the most time? Well, that's where this massive feature comes in. We'll run down the 50 best hacks, ROMs, and apps out there, telling you the essential tools you need to make sure that your rooted device is running as smoothly and efficiently as it can be. We'll show you what to use, how and when to use it, and why it's better than the alternatives. There are tips, tricks and tutorials as well, so even if you've already got all of the apps and hacks installed, there's a good chance you're going to learn something along the way.

Jargon Buster

Get up to speed on all the terms you will need to know when hacking your phone

OS
Short for 'operating system'. Often the Android ROM will be referred to as the OS – this just means the system files on the Android device that make up your user experience, similar to Windows, Mac OS X or Ubuntu on a desktop computer.

ROM
Stands for 'read-only memory'. In the context of Android, the ROM refers to the files that make up the operating system installed on your device. Gaining root privileges allows for replacement of the standard ROM with a custom one.

Root
'Rooting' your phone gives apps access to parts of the OS that are normally hidden from consumers. This enables you to run more powerful software and install custom ROMs on your phone.

ROM Manager
An app available from the Android Market that enables you to install a whole new version of your OS with a single click. It requires a rooted phone to use and is ideal for those new on the scene.

Titanium Backup
This app from the Market enables you to back up everything on your phone – apps, data, settings and all. It means that you can restore your phone to how it was, even after you've updated or changed the ROM.

Unrevoked
Available from **www.unrevoked.com**, this is a one-click tool that can be used for rooting many popular HTC smartphones.

ADB
Stands for 'Android Debug Bridge'. ADB is mainly used for software development, but it also has some uses for hacking your phone. It can be used to push files onto the system folder, for instance.

Nandroid
You might come across the phrase 'perform a Nandroid backup'. This means using a custom recovery tool to make a back-up image of everything currently on your phone: OS, apps, data, etc. It's very useful should you wish to restore your phone to its previous state later.

Radio
'Radio' refers to the software on your Android device that deals with making phone calls and data connections. Updating your radio version can bring better battery life and signal strength to your device. Some ROMs require the latest radio.

Flash
The storage in your device comprises flash memory, a type of solid-state storage. The terms 'flash' or 'flashing' mean installing new software onto your device's storage.

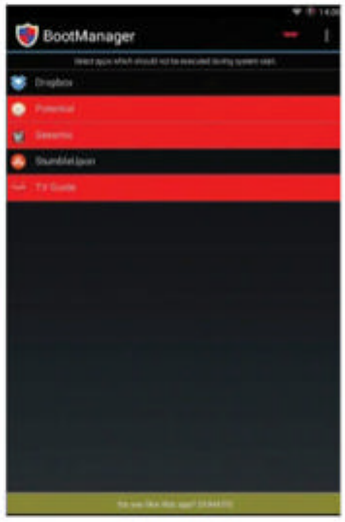
Boost your performance

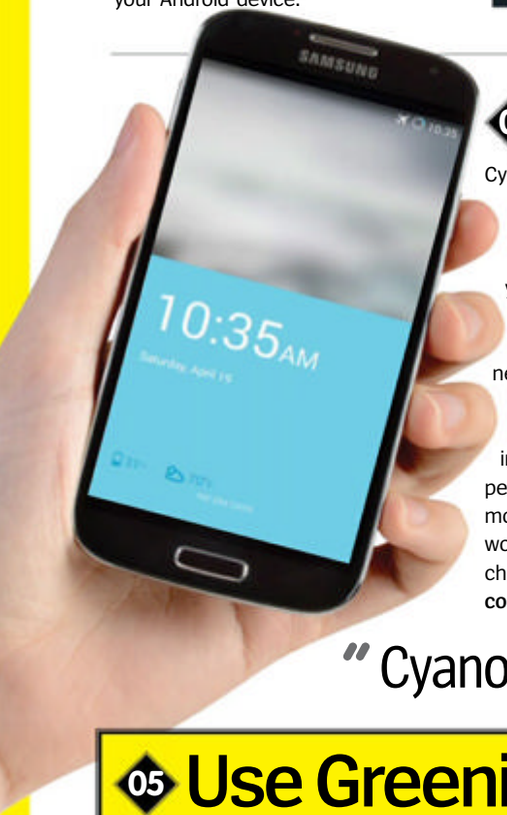
01 Use Device Control to add some speed to your device

Device Control is a free app for rooted devices that lets you easily take control of a number of different aspects of your phone or tablet. It's ridiculously simple to use, presented in a way that's a lot easier to understand than a lot of the apps in this area. It's also got a lot of other functions that let you poke and prod specific apps to tailor them to your style. Plus you can use it to overclock your CPU and GPU to make sure that you are always sucking every single drop of juice out of the hardware on your Android device.

02 BootManager can easily speed up your start up

BootManager is an Xposed Framework Module that lets you stop apps from starting up when your phone or tablet switches on. This saves you precious seconds and should turn even the most sluggish devices into something a that's great deal slicker. It might not sound that exciting, but it's the little things that can really make a difference. The module isn't the best looking one out there, but it's simple to use and once it's up and running you only need to think about it when you install a new app or process.



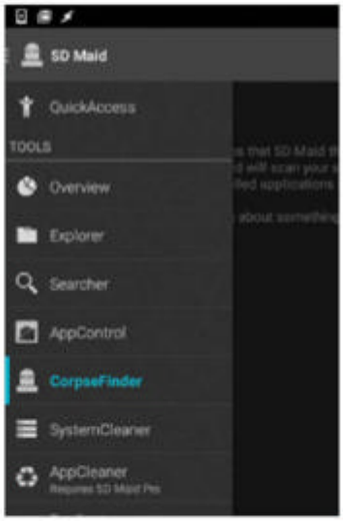


03 Install CyanogenMod

CyanogenMod is one of the fastest ROMs out there. It's super slick, and it's also open to customisation if you know what you're doing. And on top of that, it's super easy to get it installed on a compatible device. All you need is a computer and your phone's USB cable, and you can get one of the smoothest ROMs installed in no time. It's the perfect ROM for both beginners and more advanced users, and it's well worth a play. If you're interested, check out the website here **tinyurl.com/oyq4bwg** to get started.

04 Use SD Maid to clear out memory

SD Maid is an app that you can use to clean out some of the junk that inevitably gets left behind every time you uninstall an app. It digs out the bits of information and the little processes that are left behind, and makes sure your device isn't getting clogged up with junk from apps you don't even have installed any more. You'll be surprised just how much can get left behind. It's easy to use, it's free to install, and if you run it regularly you will probably find your Android experience running a considerable amount better.



"Cyanogenmod is one of the fastest ROMs out there"

05 Use Greenify to improve battery life

Greenify kills apps when they have been idle for a certain amount of time, inevitably saving you from having to hunt for a power source and charger to boost your battery

1. Time to go green

Greenify is an app that runs on nonrooted devices, but has more functionality if you've flashed your Android. It's free to download from the Play store and it's definitely worth it.

2. Analyse everything

Grant the app super user status and then let it analyse the apps that you've got running in the background. You can tap to see apps that aren't running as well.

3. Choose what to kill

Greenify will kill apps after a certain amount of idle time, so they're not running in the background sucking up battery power. It will also turn off the notifications of the app.

4. Be smart

Apps that you Greenify will automatically turn off after a set amount of time – and they will do it all the time, so make sure you don't block anything you need to keep running.

5. Experimental features

There are more options in the experimental settings. Some of them you'll have to pay for, others you'll need to install different apps or Xposed Framework modules to get working.

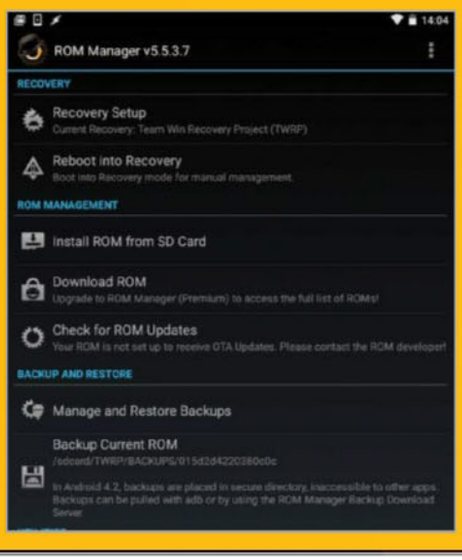
6. But experiment anyway

It's worth having a play around to see what works for you. You might want to keep notifications running in the background for example. Be smart and find what's best.

06 How to use Xposed Framework

Xposed Framework is a clever little app which lets you install different modules on your rooted Android phone or tablet that subtly alter the way things work, from aesthetic choices to much deeper alterations made to how your device works. However, getting the Installer up and running on your rooted device can be a bit of a fiddly process, so in this quick tutorial we will show you exactly how to do it. A lot of the hacks you'll find in these pages are Xposed Framework Modules, so if you're unsure how to get them working, take a couple of minutes to read this and you'll be sorted. All you will need to get started is your rooted Android device and an internet connection. Once you are ready, head to Step One.

07 Use ROM Manager to get the most out of your rooted device



What does it do?

1. ROM Manager is a pretty easy to use app that lets you take control of your installed ROMs, as well as letting you dig out more and install new ones.

What else?

2. Use the market place to search different ROMs to try.

Any more?

3. You can also use it to partition your SD card as well.

08 Get fast graphics performance

GL Tools is an app for rooted devices that lets you tweak the graphical performance of different apps. It's best used if you're trying to run something on your device and it doesn't quite have the oomph to make it work. You can load GL Tools, poke down what the game is trying to do, and hey presto, it'll run a lot better.

09 Use full!screen to use all of your screen

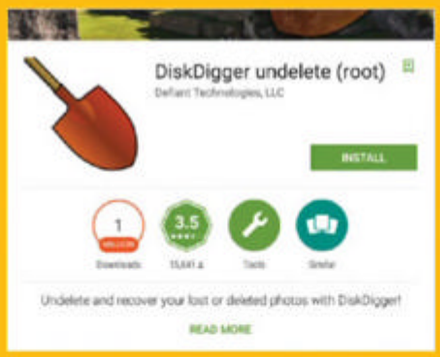
If you get annoyed by the positioning of your device's on-screen buttons when watching films of playing games, full!screen is the app for you. It lets you make the bar disappear, reposition it as hot corners, or turn it into a pie-like floating wheel that disappears after a while. It's free, easy to use and it'll let you make the most of your tablet or phone's big screen size.

10 Change the look of your device

XuiMod is an Xposed Framework Module that gives you control over the look and feel of your device. Most of the options you can tweak come from other ROMs or apps, but they've been collected here so you can customise further. There are also handy tools included, like a torch that you can use straight from your lock screen. It's definitely worth trying out.

11 Use DiskDigger to try and retrieve deleted pictures and videos

We've all been there. Clearing out photos and videos on our phone only to delete the wrong file. Don't worry though, by using DiskDigger you might just be able to get your media back.



1. Download the app

The app is free to download from the Google Play store. You can buy a pro version if you want to be able to search for different types of files.

2. Choose a partition

Next choose the main partition of your device's memory, this will be where any deleted information will be found, and then set the app scanning for .jpg and .png files.

3. Pick the files to save

When the app finds files, you can tap the three-dotted menu button to save them locally, upload them to an FTP server, or email them to yourself. Pretty simple really.

Add new features to your Android

12 Use XBlast Tools-Xposed to tweak the look of your phone

XBlast Tools is an Xposed Framework Module that you can download for nothing from the Google Play store. You can use it to personalise pretty much every aspect of your phone's UI. It's slick and there are plenty of options.

13 RootCloak is a clever module that fools apps

RootCloak is a handy module to install if you find that some of your legitimately downloaded apps aren't working after you've rooted your device. It essentially hides the root access from the apps so that they think you're unrooted.

14 Use YouTube AdAway to hide pesky YouTube ads

A simple but effective one. If you're sick of watching adverts when you're playing YouTube videos on your phone or tablet, you can use this module to block them. It can also block overlays and suggestions if you want to get rid of everything.

15 Xstana Module lets you customise your buttons

Xstana lets you play around with the on-screen buttons on your Android device. You can change the hue of the bar, the buttons themselves and plenty of other stuff as well. It's easy to use and it lets you put a real stamp on your device.

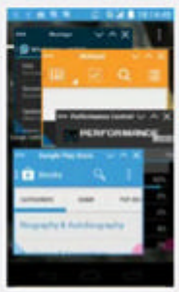
16 DynamicNotifications shows you notifications on your lock screen

DynamicNotifications is a useful module that lights up your phone when you receive a notification and shows you what it is. Clever settings means it won't light up in your pocket or when it's turned over. Handy if you need more info than a blinking LED.

17 Use Blacklist Pro to block unwanted calls and texts

Blacklist Pro is an easy to use but surprisingly effective module that lets you block unwanted calls and texts from getting through to your phone. It is simple to set up and there is plenty of things to play around with as well. Plus, it is pretty good looking.

18 XHaloFloatingWindow enable you to use certain apps in floating windows



This module is essentially a port of Paranoid Android's floating windows feature and lets you 'hover' some apps in their own floating windows. Particularly useful for messenger apps if you don't want to stop what you're doing to read a text. It doesn't work on all apps but it's definitely worth a look.

19 ProtectedApps lets you put a password on just the apps that matter to you

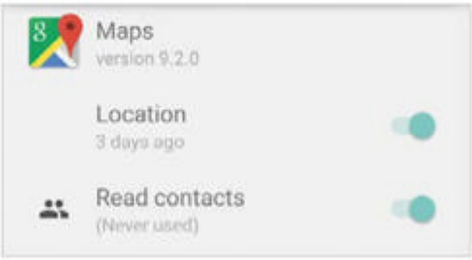
If you've got sensitive information stored on your phone, but you don't want to mess around entering a pin code every time you unlock it, ProtectedApps lets you add a password to protect the apps that store the important information. It's by the same dev as BootManager, so it's not a looker, but it is easy to use.

20 Install Paranoid Android for a slicker version of Android

Paranoid Android offers a pared back version of the Android OS and adds interesting additions to make it unique. There are some great customisation options, letting you really get into the bones of the OS and have a play around to make something that suits you. It looks incredible and is in a different league to its competitors. The big changes are with navigation and notifications, but the stock Android OS is still recognisable.

21 Use App Ops to alter particular app permissions

App Ops is a clever little app that lets you alter the permissions of the apps you've got installed on your rooted device. If you fancy trying something out, but you're not sure why you need to let it access certain parts of your device, this is one way around it. There are other applications as well, like blocking access to the internet to certain apps. It's easy to use, it looks good, and it's free to download from the Play store as well.

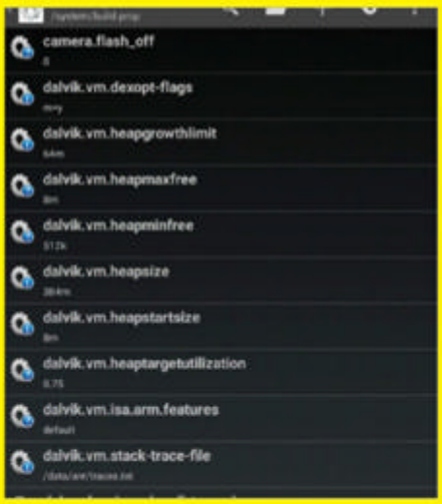


22 Build Prop Editor will change deeper settings

This app lets you tweak the prop files of your Android device. These control a lot of things, from pixel density to how often your phone scans for Wi-Fi

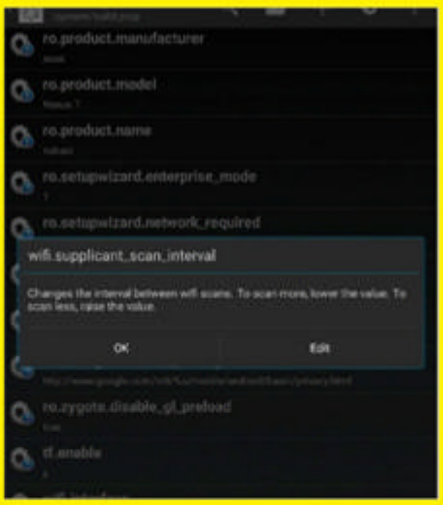
1. Get the app

Download the app for free from the Google Play store. Once it's installed grant it super user access and let it scan your device to see what files are there.



2. Check the list

Once the list is populated you can tap the cog icon to the right of a file to get some more information about what it is and what exactly it does.

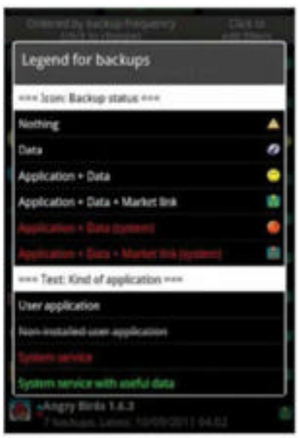


3. Change the scan

For example, the Wi-Fi scan timer file is somewhere down at the bottom of the list. Tap on it to edit it. A larger number means a less regular scan.

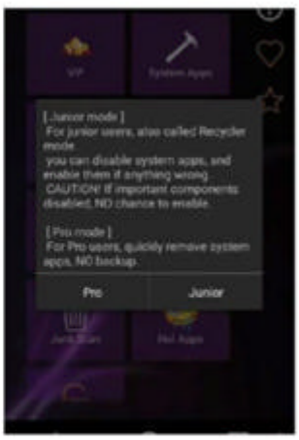
23 Use Titanium Backup to save your apps and data

Titanium Backup is widely regarded as the best backup utility on the Google Play store, and it's with good reason. This is a brilliantly slick app that's easy to use, and offers a level of functionality that most of its competitors just can't. As well as letting you backup your apps and data it enable you to move apps to your SD card as well, which is a huge help. The pro version gives you even more tools to play around with, but most users will be happy with what the free version has to offer.



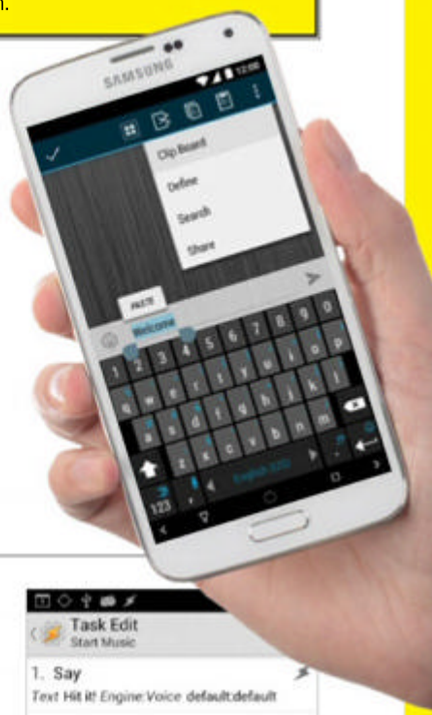
24 Get rid of bloatware with Root App Delete

Root App Delete enables you to get rid of system apps that you normally wouldn't be able to. It's particularly handy if you're running a rooted Android device but you're happy with the stock or third party UI that it comes with. Deleting things can be a tricky business, so it's always a good idea to really know what you are doing before fully you take the leap. A Junior mode lets you delete things without actually deleting them to test if it will brick your phone, which is a useful feature to experiment with.



25 Copy and paste with Native Clip Board

Native Clip Board is a slightly awkwardly named Xposed Framework Module that gives you a much more useful clipboard to copy things to than the usual process you use. You can copy multiple items at once, and the things that you copy can be really, really long. It all works in a similar way to the copy and paste functionality that you are used to, but it adds an extra layer that is going to prove especially useful if you use your Android phone or tablet for work or to compile important documents, for example.

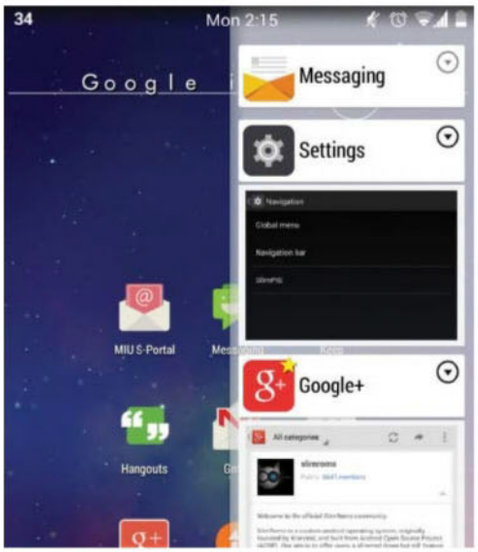


26 Use Tasker to automate your phone or tablet

Tasker is by far the best task automation app for rooted devices. It's smart, smooth, and depending on how you want to use it gives you plenty of options to make simple or complex formulas. Used in conjunction with other apps you can create some really interesting ways to work around Android problems. Rooted devices get more functionality and if you pair it with Tasker App Factory, you can essentially create your own apps out of the different tasks you make.

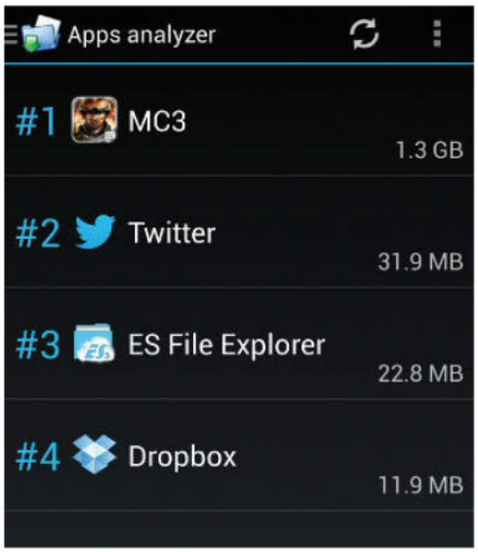
27 Install SlimRom to pick the bits of Android

SlimRom is a flashable ROM that takes a surprisingly pared back version of the Android OS and turns it into something special. There's a lot of ingenuity in the way it delivers notifications, and a favourites drawer so you can get to your apps quickly. On top of that, it looks lovely and borrows great ideas from other ROMs to create a streamlined experience that highlights the best of Android. You can further tweak things with a suite of apps designed by the developers as well.



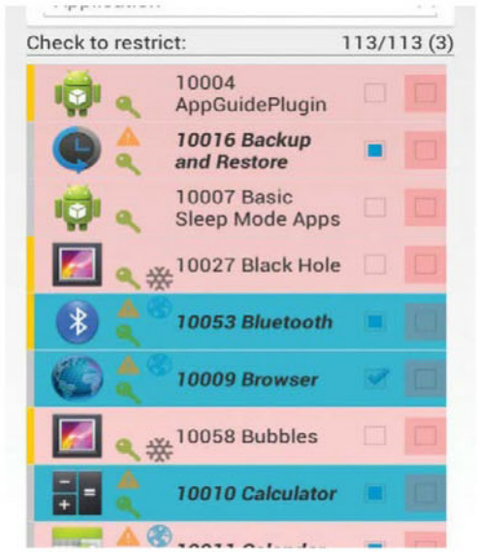
28 Free up some space in your memory with FolderMount

Using FolderMount is a clever way to make sure that you're not using up all the space in your internal memory. A lot of apps will store data on there and it's pretty difficult to shift. FolderMount links that data to folders on your external memory, using that instead and freeing up space that would otherwise have been taken up. It's really easy to use, it's free to download, and if you've got limited internal storage it can be a real life-saver on your device.

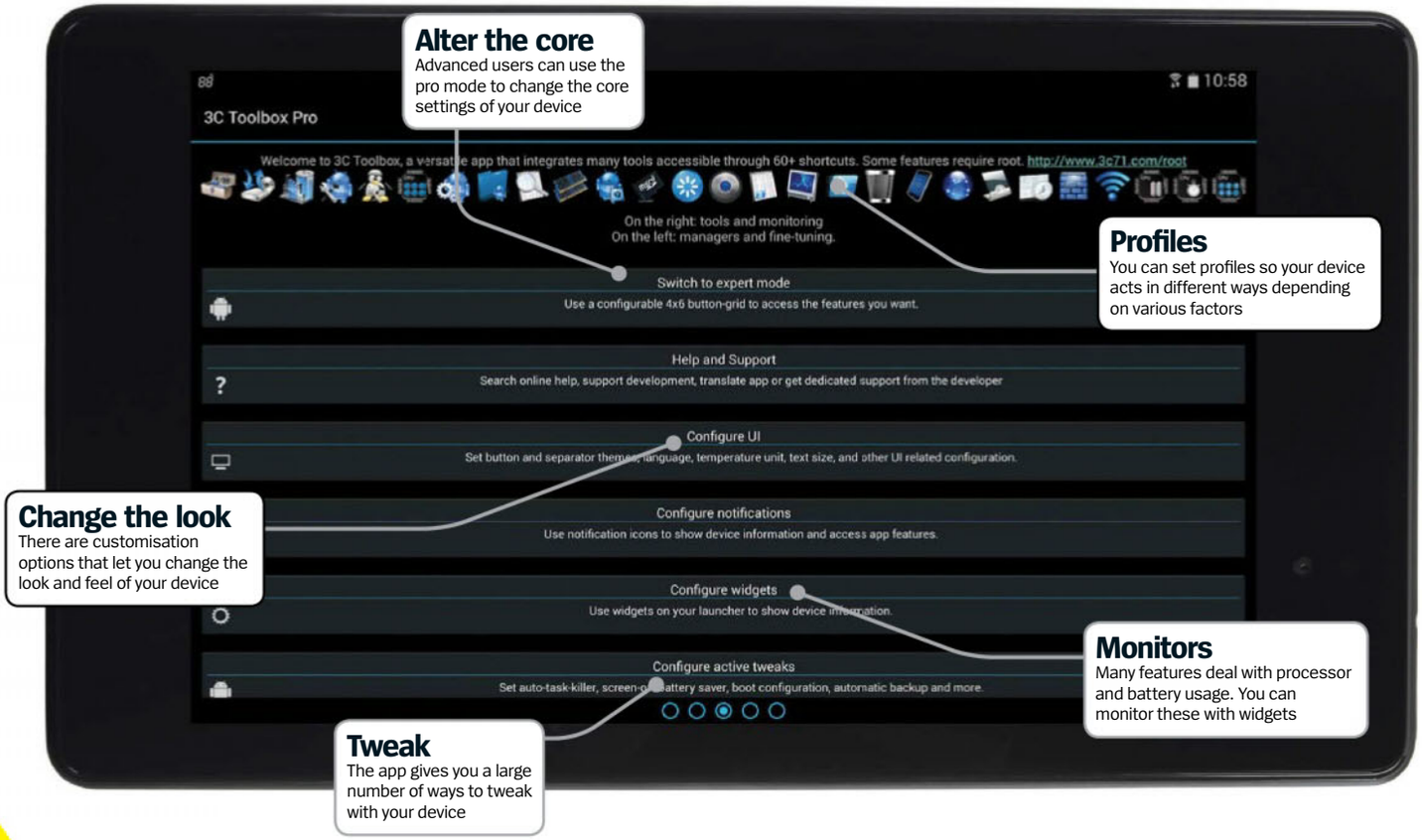


29 Xprivacy lets you control the date you send to apps

If you're worried about privacy, Xprivacy is an Xposed Framework Module that you definitely need to install. It enables you to restrict the data that apps collect about you, then either sends nothing or some faked data in instead. It's easy to install, and all you need to do is go through a list and check some boxes to make sure that you're not giving away more than you'd like to. You can change the settings back if they're messing with the way an app works as well.

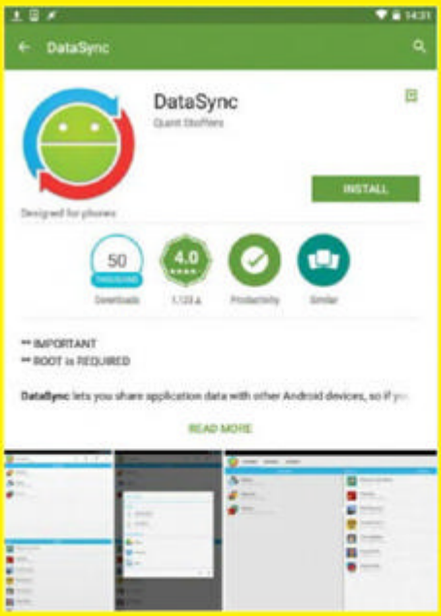


30 Use 3C Toolbox Pro to play around with settings



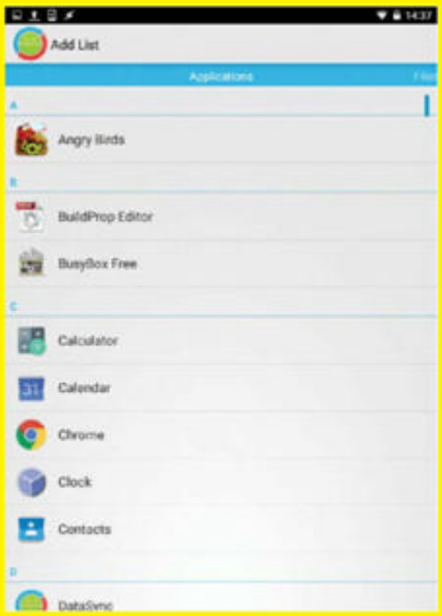
31 Sync app data using Wi-Fi, Bluetooth or NFC

Datasync enables you to share app data across multiple Android devices. It's particularly useful if you're playing a game on your phone and want to keep going on your tablet



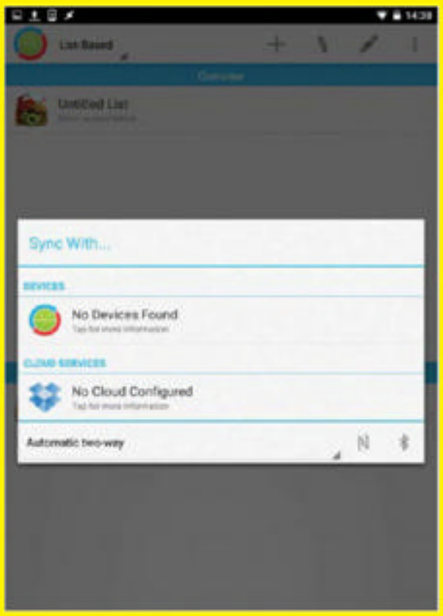
1. Find the app

Find the DataSync app for free on the Play store and install it. You'll also need to have BusyBox installed and up to date if you want everything to work.



2. Create a list

Once everything is installed, you'll need to create a list of the apps you want to sync. Tap on the + button and select them from the list that appears.

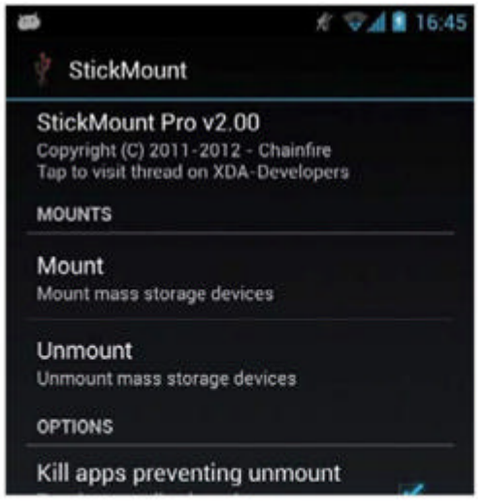


3. Share

If you've got DataSync installed on another rooted device on the same Wi-Fi network it should connect automatically when you tap on the share button in the top-right corner.

32 Use StickMount to use a USB stick as external storage

StickMount is a simple app that lets you connect USB drives to your rooted device. It's designed for Nexus devices, but it also works on other rooted phones and tablets. Download the free version to check it works with your device before paying out for the full version. You'll need a USB2Go cable to make it work, but if everything goes to plan, you'll be able to connect any USB flash drive to your Android device in a few taps.



33 Samba Filesharing lets you turn your Android device into a folder on a network

Samba File Sharing lets you connect your Android device to a Windows network to use it as a shared folder. All you need to do is install the app and then use your PC to search through the network. You'll need to fill in some details, and it's a good idea to set up a password to make sure your device is protected. There is not much to the app itself, but the freedom it opens up when you are connected to the same network as your PC is pretty impressive.

> "There is not much to the app itself, but the freedom it opens up when you are connected to your PC is pretty impressive"

Supercharge your smartphone

34 Install AOKP

AOKP is one of the most fully featured ROMs out there. There's a huge number of personalisation options included, and it's fair to say that every phone running AOKP looks different. You will need more technical know-how to get the most out of it, but it's definitely well worth the effort.

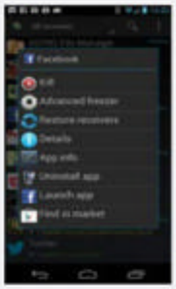
35 Download GravityBox

GravityBox is an Xposed Framework Module for devices running stock KitKat or Android. It's a little out of date but you can basically use it to create your own personalised ROM, tweaking a lot of the style of your device along the way. You can create some impressive looking stuff on older devices as well.

36 Use SoftKeyZ Root

SoftKeyZ Root lets you change the softkey buttons at the bottom of your screen. It's a premium app, but there are more than 150 different key options to choose from, so there's probably going to be something that's likely to tickle your fancy. There are more added regularly as well.

37 Get ROM Toolbox Pro



It might be a premium app, but as well as giving you lots of tools to play around with your ROM, ROM Toolbox Pro offers some great personalisation options as well. You can download and install new fonts, change your boot animation, and select from a number of different themes as well.

38 Use Xposed Additions

Xposed Additions is an Xposed Framework Module that lets you change what hardware buttons do, as well as changing the duration of long presses and the time needed between double taps on those buttons. It essentially creates a physical shortcut that's always within reach and gives you some extra options to play with.

39 Tint your status bar with Tinted Status Bar

This module changes the hue of your status bar depending on the app you're using. So if you're in the Play store it might turn green, for example. It's not the most complex of processes, but it will certainly make your phone stand out from the crowd once you have got it turned on.

40 Change the settings for individual apps with App Settings

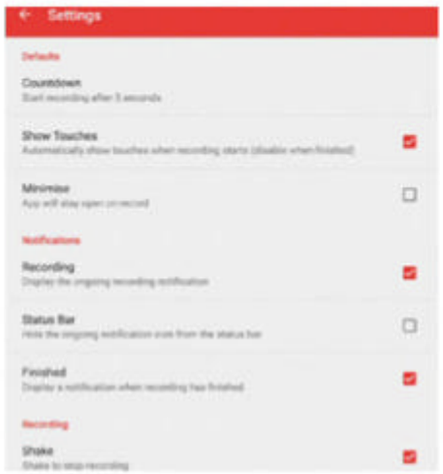
App Settings is another Xposed Framework Module that lets you play around with the settings for different apps. This means you can lock the rotation for some and not for others, change the dpi and play around with a variety of settings that will kick in when you open the app.

41 Use GMD GestureControl

GMD GestureControl lets you add your own multi-touch gesture controls to your rooted device. You can use pre-sets or make your own, swiping multiple fingers over the screen like you would on an iPad to close apps and move to different programs. It's really easy to use and good looking as well.

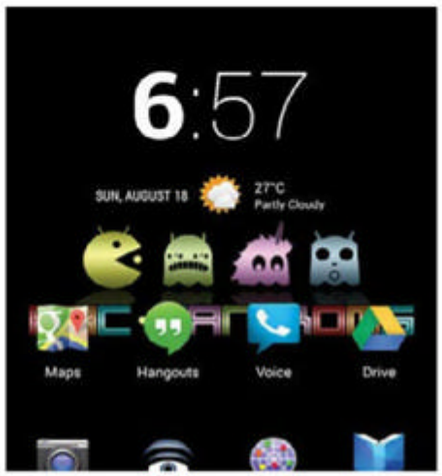
42 Use Maximize Lockscreen Widgets to do just that

Maximize Lockscreen Widgets is an Xposed Framework Module that pretty much does exactly what it says on the tin. It gives you much more information about the notifications displayed on your lock screen and means you don't have to unlock your device to find out what's going on. It's designed for devices running builds of Android based around 4.2 and up, so it's a little long in the tooth but it's still got a lot to offer all the same.



43 Use Rec. (screen recorder) to record your screen

Rec. lets you record the screen of your rooted KitKat or none-rooted Lollipop device. It's simple and effective, and it'll capture sound from your microphone too. It's not the best quality footage and some ROMs can be a bit flustered about it, but it's a neat idea and it works brilliantly when it gets things right. There are plenty of options to play with and the app saves the footage directly to your device. You can trim the results as well.

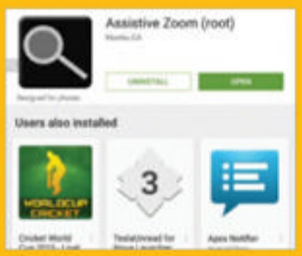


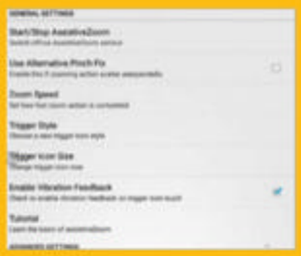
44 Download and install Pac-Man Rom

It might not be one of the better known Android ROMs, but Pac-Man offers a heap of features that some of the more popular builds don't. It packages together some of the best ideas from the likes of CyanogenMod and AOKP and wraps them all up in a brilliant and stable UI. It's good looking, it's well supported, and it's got Pac-Man on it. What more could you want? It might not have the pulling power of the others, but it's definitely worth a try.

45 Use Assistive Zoom to pinch to zoom with a single finger

This app adds an icon on the side of the screen so you can zoom in without having to pinch. Great if you want to use your device with one hand





Get the app

The app is free to download. There's a premium version but grab the free one first to make sure everything works. Make sure you grant the app super user permission as well.

Follow the tutorial

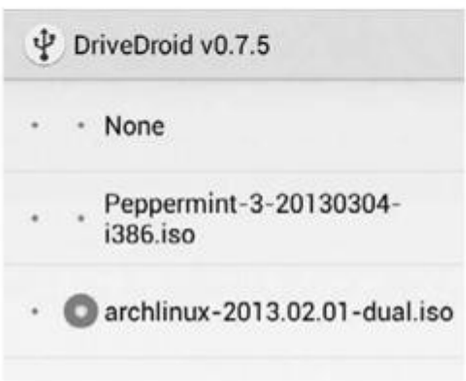
You'll be given a brief tutorial that explains how everything works. Push on the icon until the magnifying glass image appears, then slide your finger up or down to zoom.

Make tweaks

Once you've done the tutorial, head to the Settings and tweak things around to suit you. You might want to move the icon or enlarge it, or change the sensitivity.

46 Unicon can change the icon sets on your phone

Unicon is an Xposed Framework Module that lets you change the stock icons on your device to something that suits your personality. It's a premium download from the Google Play store and you'll need to activate it in the Xposed Framework Installer once you've bought it, but if you're looking to change the style of your Android device on a regular basis it's a good bet. There are plenty of icons to choose from and others to find on the Play store as well as other services that the app connects to.



47 Use DriveDroid to turn your phone into a bootable Linux drive

DriveDroid means you don't need to carry a USB stick with a bootable version of Linux around with you any more. Install one to your phone or tablet, or download one from the repository that the app provides, and as long as your phone can be used as a USB mass storage device, you'll be able to boot up Linux from any PC just using your phone. It's really simple to install, and while you'll need a bit of know-how to get it working, if you want a working build of Linux on your phone you've probably already got some of that.

48 Let SD-Booster speed up your SD access speeds

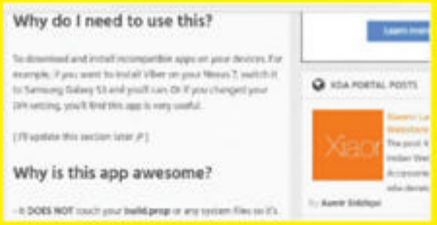
SD-Booster is a simple app that should speed up the read times of any SD card you're using. It won't speed up the write times, but you should notice a change when you're accessing things from your SD Card. You can speed up internal and external SD memory, and save profiles for all of the SD Cards that you use. There are a bunch of other functions that let you keep an eye on your cards as well. Well worth a download.

49 Overclock your device with Trickster MOD Kernel Settings

Trickster MOD lets you get deep into the workings of your phone or tablet, keeping a check on the processor and tweaking it to make sure that you're getting the best performance out of it. There's plenty to do here, but you'll need to have a bit of an understanding of what's going on underneath your device's hood if you want to have a tinker. The app has plenty of other functions as well, and if you can get to grips with it then you will be able to set up your Android device in ways that other people simply won't think possible.

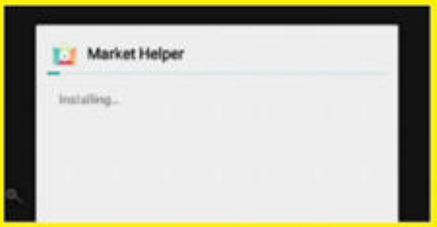
50 Fool Google Play with Market Helper

Market Helper is a an app that gives your phone or tablet a different footprint, fooling the Google Play store, letting you download apps you wouldn't otherwise be able to.



1. Find the app

Market Helper isn't available on the Play Store, you'll need to grab it from its website here **tinyurl.com/a376jms** and then sideload it to get it working. Give it root access.



2. Give it a moment

It might take a while for the app to load, but give it time. Once it's loaded up you'll be shown a screen that's basically made up of drop-down boxes.

3. Set the trap

Here you can build your device's new identity using the options in the drop-down boxes. To reset it, just tap the Restore button and your phone will be itself again.

4. Make the change

You can even change the country or origin of your device from one of the menus. This means you'll be able to download region locked apps and games as well.

status update

Which devices are best for the hacking scene?

Nexus 6

Rooted? Yes
Active Development: High
Google's first phablet is easy to root, with hackers eager to exploit Android Lollipop's features.

Sony Xperia Z2

Rooted? Yes
Active Development: Medium
Rooting the Z2 just got easier with XDA Forum user 'rafealbelo' successfully hacking a locked Z2 with no custom recovery.

OnePlus One

Rooted? Yes
Active Development: High
This popular Chinese phone runs CyanogenMod as standard, so is highly customisable.

LG G Watch

Rooted? Yes
Active Development: High
Android Wear is easy to hack and Gohma is our recommended custom watch ROM .

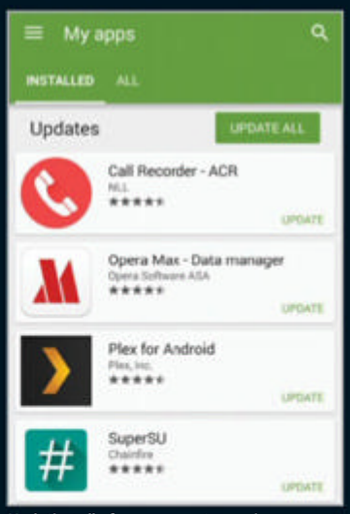
Tips & Tricks

Don't update by default

It's all too easy to tap the Update All button in Google Play and watch as the apps on your phone or tablet update to the latest versions. Unfortunately, it can also lead to more problems than it solves.

Developers usually update apps to fix bugs, add new features or to meet new framework or UI requirements set by Google. However, it isn't wise to accept these updates at face value. At the very least you should okay each update in turn, manually checking the requirements that each has for privacy reasons alone.

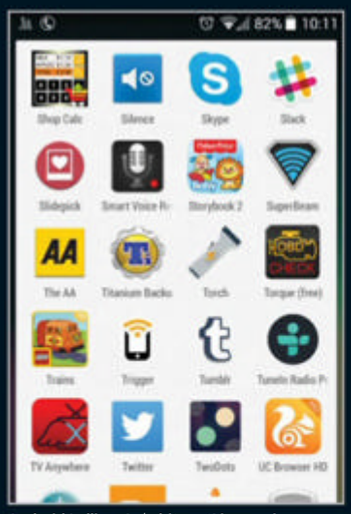
But for the best results, and to save yourself a bigger problem later on, run a search on apps that you use regularly, perhaps checking Google Play's reviews section for post-update feedback. This way you can identify potential issues with the app and delay your update, or uninstall and make a fresh installation.



Updating all of your apps at once is easy - but should you really do it?

Google Now's background

One app that you might be particularly displeased with at present is Google Now, Google's preferred launcher for Android devices which has recently undergone a Material UI upgrade. While the new navigation system hasn't been included in this, a couple of controversial additions have been, and for users yet to enjoy the mixed blessing of upgrading to Lollipop, this preview isn't exactly encouraging.



Android Lollipop's 'whiteout' is causing trouble in the new-look Google Now launcher

The problem is with the white background on the search box and app drawer, the latter particularly frustrating if you use apps with white or light-coloured icons.

Fortunately, there is a way to rectify this which involves installing a different launcher. Nova Launcher is a strong alternative that's free from the Google Play store and can be quickly configured to import your existing app shortcuts and widgets (although you'll lose the Google Now screen). Once you are happy with the set-up, tap Home and confirm your new app by pressing the Always button.

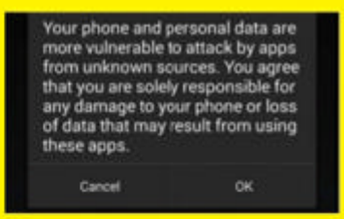
Delete app defaults

You may prefer to leave the Google Now launcher as it is. However, safe in the knowledge that the app developers will upgrade their light-coloured icons to deal with the problem (or clinging to the hope that Google will restore transparency to

quickhacks

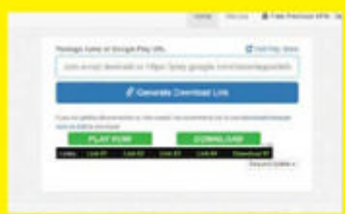
Incompatible app? Sideload the APK from Google Play

Ever followed a link to an app or game only to find that it isn't available where you live? If you're confident the app will work on your device, you can sideload it.



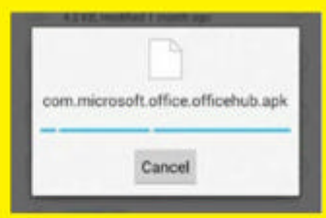
1 Enable unknown sources

First, you will need to enable Unknown Sources. Open Settings>Apps and check the Unknown Sources box, taking care to read the warning message.



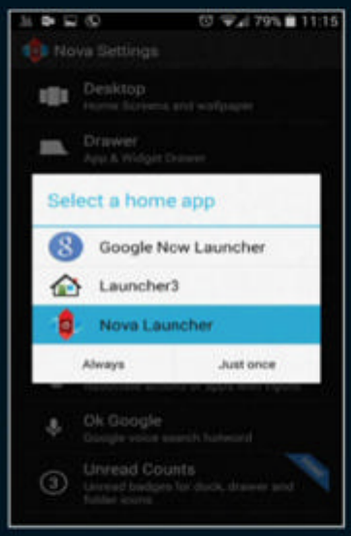
2 Download the APK from Google

To get the APK, use a service like **apps.evozi.com/apk-downloader**. Insert the name (in the format com.appname.device) or Google Play link, then click Generate Download Link.



3 Install the APK

After downloading to your PC, copy to your Android device and tap the APK file to run. If Unknown Sources is enabled, the app will install. Disable Unknown Sources when you're done.



Toggle launchers in your Android's settings

the app drawer background!). If this is the case and you've already installed Nova Launcher as the default choice, you will need to remove this default in order to revert back to Google's launcher.

All apps with defaults attached can have this setting managed via Settings>Apps, where you should open the app concerned and tap the Clear defaults button. Should you run into any difficulty here, check Google Play to find an app that can be used to clear your defaults.

Revert to old app versions

If you would prefer to leave your apps set to auto-update but you are particularly aggrieved by a certain recent change, you could uninstall the app completely and then download and install a previous version instead.

Several websites maintain an archive of previous versions of apps, including, just in case you're interested, the Google Now Launcher. One such archive is **www.apkmirror.com**, which enables you to download the older version of your once-loved apps to your device or computer and install them.

As with any app install from a third party resource, you will need to ensure that Unknown Sources is enabled by going to Settings> Security>Unknown Sources. However, we would strongly advise that the setting is disabled immediately after installation to avoid any of your apps auto-installing malicious software.

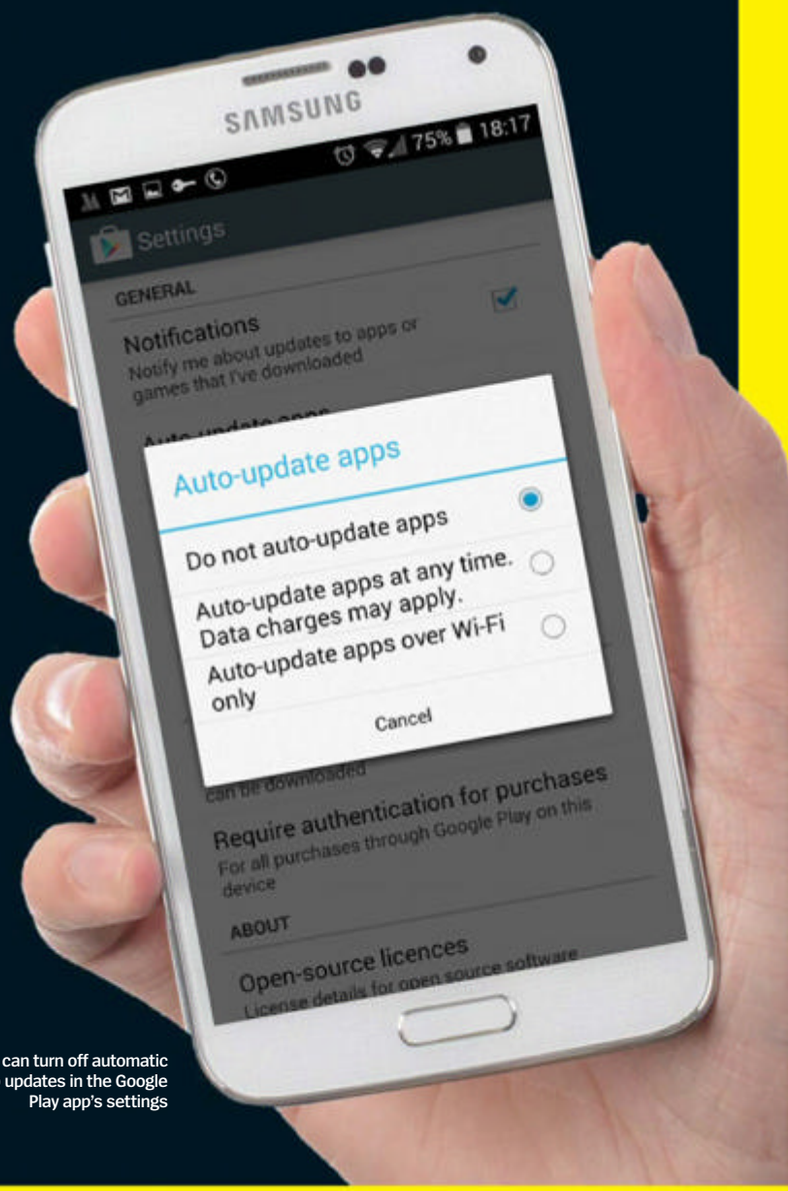
Wth your favourite app restored to its former glory, keep an eye out for updates and if possible, avoid them if they're likely to cause problems later on.

Disable auto updates

It's a good idea to avoid the auto updating of apps before any of them update and change your finely-balanced Android experience into a nightmare scenario.

Open the Play store and then open the hamburger menu, looking for the Settings option. Look for the Auto-update apps setting under General and select 'Do not auto-update apps'.

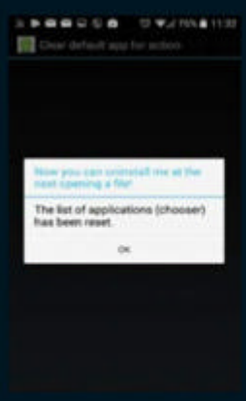
The menu will close with the new preference set. As explained above, if you don't choose this option then you will need to keep a close eye on what different updates will do to your apps and phone, as they can be quite disruptive. Meanwhile if you do choose to disable auto-updating, then you will need to manually update apps, which may prove to be inconvenient or time-consuming in the future.



You can turn off automatic app updates in the Google Play app's settings

Hacking the easy way

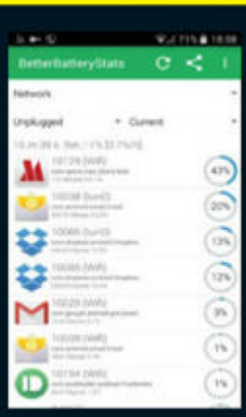
Get great new features without getting your hands (too) dirty



Clear default app for action

Price: Free
From: Google Play
Need root? No

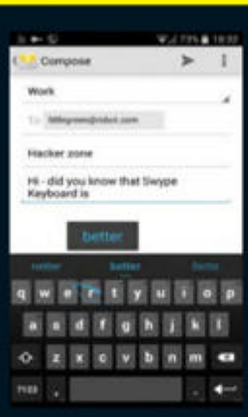
Accidentally set the wrong app as a default, and worse, can't remember which app will launch? With this app you can quickly clean your defaults and automatically uninstall them when done.



Better Battery Stats

Price: £1.74/$2.16
From: Google Play
Need root? Yes

Use this app to find out which apps in particular are draining your battery. Rogue apps that should be sleeping when not used can be weeded out and dealt with, which will extend your battery life.



Swype Keyboard

Price: £0.59/$0.99
From: Google Play
Need root? No

As well as enabling you to type with one finger, this app now offers a personal dictionary backup and sync service, as well as tablet keyboards and voice recognition. So now all of your messages can look totally professional.

Works with » Android 4.4 **Difficulty** » Intermediate

Boost your gaming performance

Overcome sluggish gaming speeds and choppy sound effects with these scripts and mods

Whether you're using a high-end tablet or a low cost phone, Android gaming can prove frustrating when gameplay is disrupted by poor hardware performance.

In theory, a device with a fast CPU and GPU should play games without any issues, but this is rare unless you have taken steps to ensure that gaming is prioritised. Closing all other apps or restarting your device and only running the game when you reboot, is not easy without the introduction of third party tools to help.

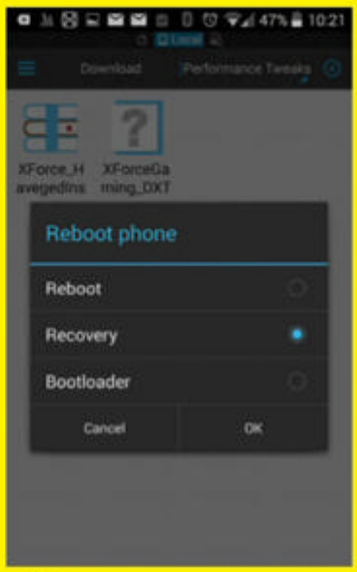
If a game is listed as being compatible with your device, it isn't an unrealistic expectation for it to run in a playable manner. Fortunately, these tools exist in the shape of scripts and mods that can be downloaded from **XDA-Developers.com** and installed on a rooted device to improve your overall gaming performance.

Installing these scripts and mods usually requires the assistance of a supporting app, so we recommend you start with the Hyper Cola Package Installer (you could also try XForce Gaming, NxEngine and Project Fluid), which can be found and downloaded by running a search on the **XDA-Developers.com** forum. Installing scripts individually and testing them with a resource-hungry game before proceeding, is the best option.

One word of warning: these scripts come with no warranty, so there is the risk that your phone or tablet could be bricked. Make sure you backup your data before proceeding!

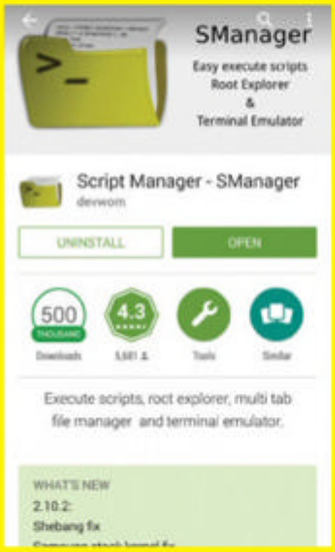
1 Download the script

Go to **XDA-Developers.com** and search for Hyper Cola Package Installer. Find the download link for the most recent version, which will have the suffix .SH.PDF. Right-click and select the 'Save link as…' option. Then you can simply save and copy it to your phone.



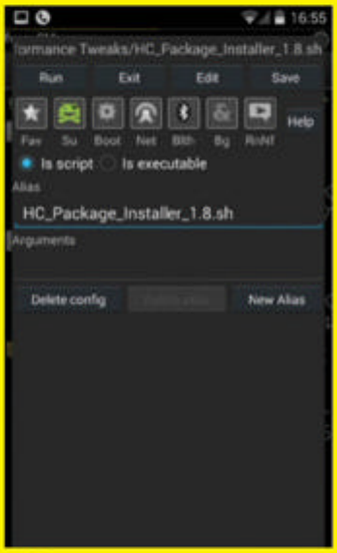
6 Download and flash

Again at **XDA-Developers.com**, search for Blend Boosted and download the ZIP file, transferring it to your Android device if you downloaded on your PC. The BlendBoosted™.zip file will need to be flashed in your recovery, so restart Android, boot into Recovery (TWRP or CWM) and flash.



2 Install additional tools

To install this script you will need to install a few tools. First is SManager for managing script executables on Android, which is available from Google Play. While you're there, install the Terminal Emulator for Android that's required to enter the launch command.



3 Install the script

Open SManager and browse for the script which you should have renamed from .SH.PDF to .SH. Select the SU option in the top-left of the screen (to run the script as root) and Run. If done correctly, you'll see various confirmations being displayed as the script makes its changes.

4 Execute the package

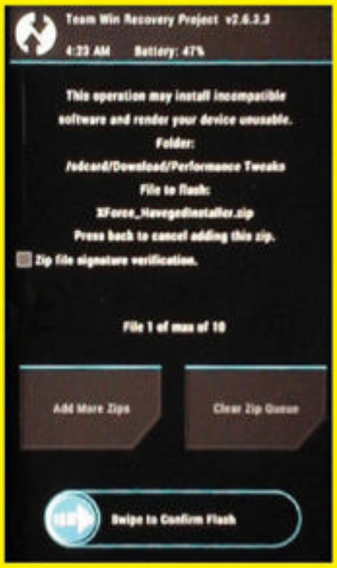
The final step for Hyper Cola Package Installer is to run it. Run Terminal Emulator for Android and enter: **su -c hyper**. Launch your preferred game and you will notice better performance. The command must be entered each time you reboot for the script to work.

5 Boost your graphics

Graphics management in Android isn't ideal, with most ROMs putting app and homescreen graphics onto the CPU, leaving the GPU for gaming. Blend Boosted is a great app that gives the GPU more to do and has audio and video tweaks for performance enhancements.

7 Comprehensive tweaks

Rather than running a script to tighten issues, consider a more comprehensive approach. This is made possible with XForce Gaming, but installation requires additional tools like Haveged Installer, found in XDA's XForce Gaming thread and SManager.

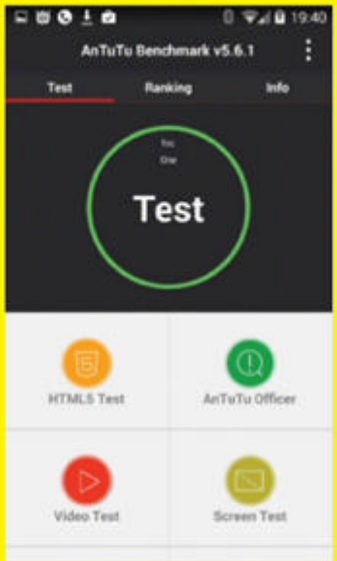


8 Install XForce Gaming

Restart Android and flash Haveged Installer in recovery. Restart, download the newest version of the script and open in SManager, moving it to /system/xbin. Set the permission to 777 and ownership as root. In Terminal Emulator, enter su xforce to install tweaks.

9 Benchmark performance

It's useful to check how great your Android device's gaming performance has been increased with these tweaks to get an idea of what works and what doesn't. Benchmarking is the answer, with AnTuTu Benchmark being the best such app on Google Play.



10 Use AnTuTu Benchmark

Don't be dazzled by the options in AnTuTu Benchmark. Tap the Test button on the main screen to get benchmarks for speed and graphics, before and after running the tweaks and scripts. These are numbers, of course, the real test is how gaming performance improves!

Works with » Android 5.0 and up **Difficulty** » Easy

Make themes for CM12 Theme Engine

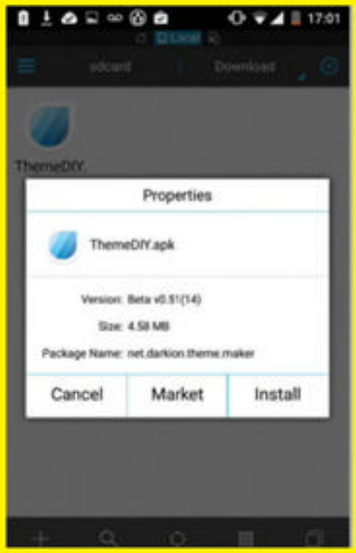
Build your own detailed custom themes for your device using Theme DIY

While there are lots of themes on the Google Play store and the internet in general, at some point you may want to create your own themes so that your Android device looks exactly how you want. With the help of theme-editing apps, it is possible to create themes in just a matter of minutes.

Theme DIY is an app that you can use to create themes – as long as your device is running Android 5.0 Lollipop and the CyanogenMod 12 theme engine. Using Theme DIY, you can customise your device in impressive detail, right down to the colour of the text that appears on your device's different notifications and buttons. You can also add custom fonts, wallpapers, backgrounds and boot animations.

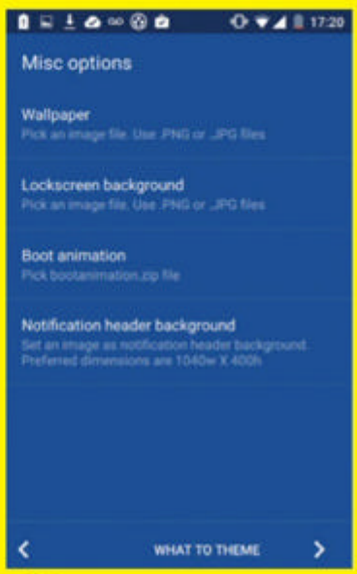
Before you start creating a theme, you should gather any additional resources that you want to incorporate into your theme. This includes any images you plan to use as wallpapers or backgrounds for your lock screen or notification header. You should also download any boot animations that you want to use, as well as any TTF fonts. The XDA Developers forum is a good source of boot animations, and you will find lots of free TTF fonts on websites such as **www.fontsquirrel.com**, for example.

To download the Theme DIY app you will also need a file explorer app, such as ES Explorer, which you can download easily for free from the Google Play store.



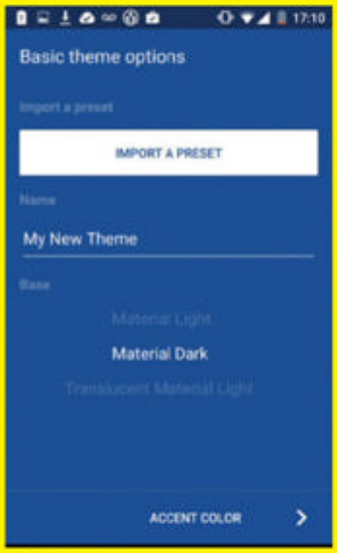
1 Install Theme DIY

On your device, go to the developer Darkion Avey's blog (**http://bit.ly/1y1oVC2**) and download the Theme DIY APK. Then use ES File Explorer to navigate to your download folder, find the APK file, give it a quick tap and then select Install. When you are prompted, tap the Install option again to complete the process.



6 Misc Settings

If you have any images that you want to use as your theme's wallpaper, or the background for your lock screen or notification header, you can add these here. You can also add a custom boot animation at this point as well. Once you have added all of your resources, tap 'What To Theme' to move on.

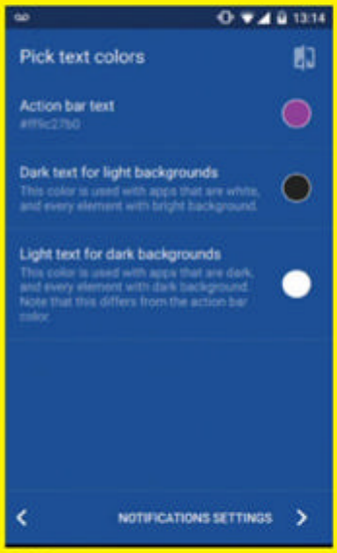


2 Choose your template

Launch the Theme DIY app and tap the + button to create a new theme. Name your theme and choose its 'base', which is the template your theme will be based on – Theme DIY supports Lollipop's Light, Dark and Translucent Material templates. Next, tap Accent Color.

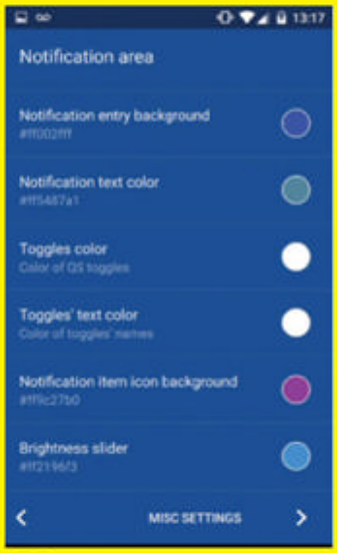
3 Create accent colours

Choose the colours your theme will use for its various elements, like the buttons and navigation bar. Tap each item in turn and then choose one of the predefined colours, or create your own by tapping Custom Color and then tweaking the colour controls. Tap Background Color.



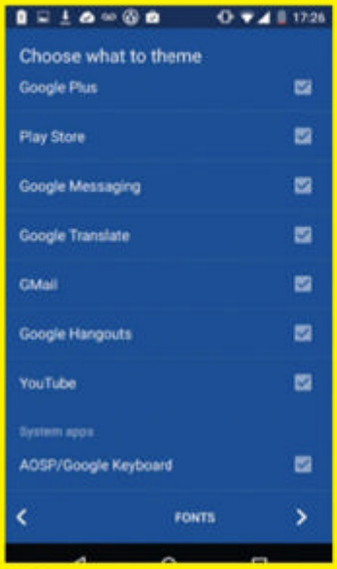
4 Background and text

Pick the colours your theme will use for its light and dark backgrounds, then tap Text Color and choose colours for your dark and light text. Next, choose the colour to use for 'Action bar text', which is any element that uses your chosen accent colour as a background.



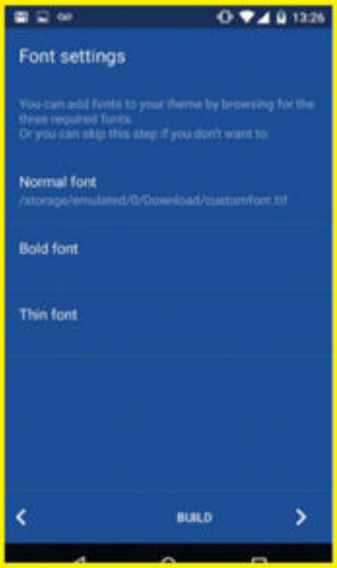
5 Notification settings

Tap Notification Settings. Here, you'll choose the colours that your theme will use for the notification icons, text and more. Tap each item in the list and then choose one of the predefined colours, or create your own. Once you're happy with your selections, tap Misc Settings.



7 What to theme

On this screen you can choose which apps you want to apply your theme to. All of your apps are included by default, but you can remove them by simply giving them a tap. You can also choose to theme the Google keyboard. Once you have finished selecting your apps, tap Fonts.

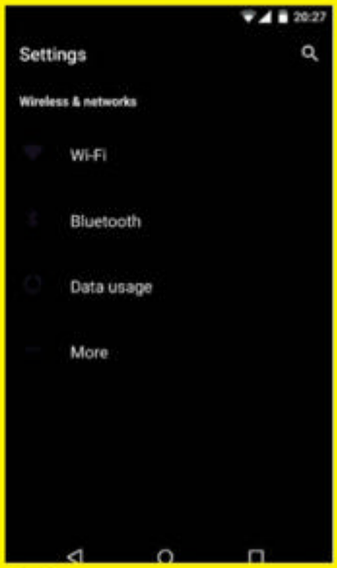


8 TTF Fonts

If you have a TTF font that you want to use, you can apply it here. Remember, that once you have assigned a custom font to either the Normal, Bold or Thin options, the Build button will be temporarily disabled until you choose fonts for all three Normal, Bold and Thin options together.

9 Build your theme

Tap Build and Theme DIY will build your app. Once it's finished, tap Install followed by Next. When prompted, tap Install again. To use your theme, close the Theme DIY app and go to your device's Settings>Theme. Find the theme that you just created, select Style and tap Apply.



10 Reboot and test

After you've applied your theme, it's recommended that you reboot your device. Once your device has rebooted, take a look around a few areas of your newly-themed device. If you're not happy with your theme, create a new one by relaunching Theme DIY and repeating the process.

Works with » Varies with device **Difficulty** » Advanced

Modify any Android device's battery icon

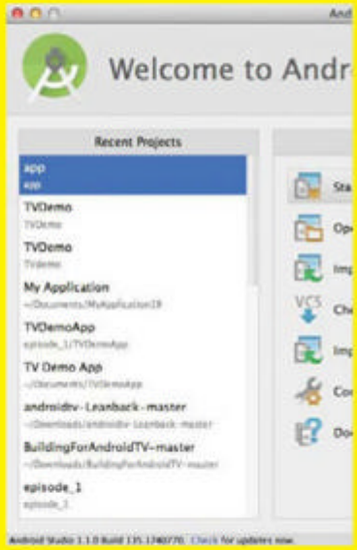
Learn how to create custom battery icons for your Android smartphone or tablet

If you've rooted your device, there's pretty much no limit to the you can make. We will show you how to delve into the individual image files that make up your device's ROM, so that you can create your own battery icons. You can either edit the existing battery images, or replace them with entirely new graphics instead.

To customise your battery icon, you'll use 'adb' (Android Debug Bridge) commands to pull the SystemUI.apk file from your Android device and onto your computer. You'll then use a program called Apktool, to decompile the SystemUI.apk into a series of editable files so you can make changes to the battery images. Once you've finished editing, Apktool will help you to recompile the files back into a single SystemUI.apk file, and use SignApk to 'sign' the modified SystemUI.apk so it can run on your device. Finally, you'll use another adb command to push the modified SystemUI.apk file back to your device.

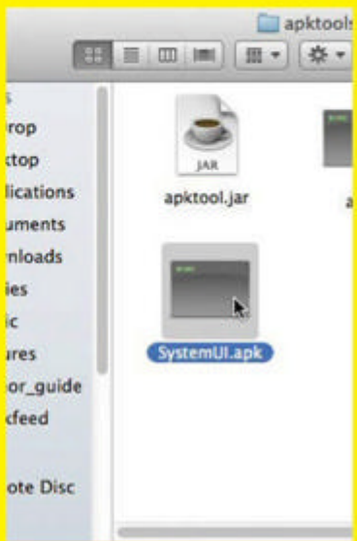
Apktool is available for Windows, Linux and Mac. This tutorial is written specifically for Mac, but the steps are applicable to Windows and Linux computers too, although the actual adb, Apktool and SignApk commands will differ slightly between operating systems.

Since you will be using adb commands, you will need to have Android Studio set up on your Mac. You can easily download and install it from **http://developer.android.com/sdk/index.html**.



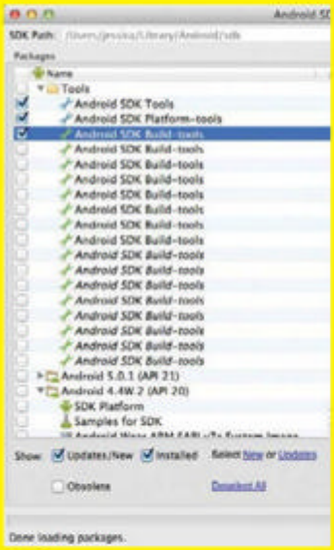
1 Create a project

Start by downloading some additional packages for Android Studio. Launch Android Studio and create a new project. The project just makes it easier to download the necessary packages, so follow the onscreen instructions and accept all the project defaults. Next, select Tools>Android SDK Manager from Android Studio's toolbar.



6 Move SystemUI.apk

Move the SystemUI.apk file to your apktools folder. Change directory so the Terminal is pointing at the apktools folder (**cd /Users/username/apktools**). Check Apktool is working by entering the Terminal command: **./apktool**. If it's working correctly you'll see information about Apktool commands.

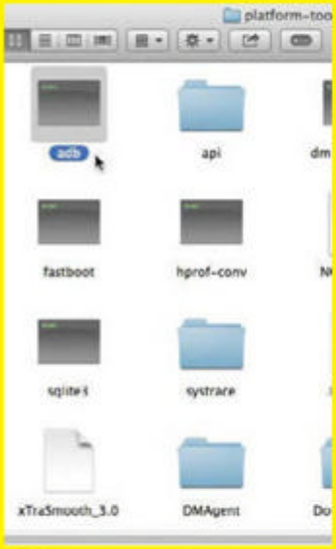


2 Install additional packages

The SDK Manager should open with some packages already selected. Leave these packages selected, but also make sure you have the latest versions of SDK Tools, Platform-Tools and Build-Tools selected. Install the packages by following the instructions on screen and then close Android Studio.

3 Create an Apktools folder

Go to **code.google.com/p/android-apktool/downloads/list,** download Apktool and a relevant helper script. Unzip both and create a 'apktools' folder in your home directory. Move the files into 'apktools', then go to your 'platform-tools' folder (use Finder to search for 'platform-tools').

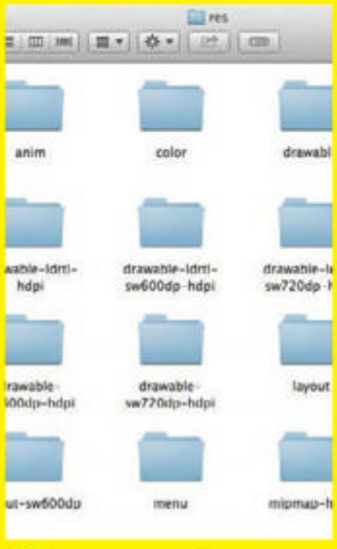


4 Change directory – 'cd'

'Platform-tools' contains an 'adb' file. Open a Terminal window, then type a 'cd' command into the Terminal window and press 'Enter' to change directory. Your command should look like this cd: **/Users/username/Downloads/android/sdk/platform-tools**. Next, attach your device and computer via USB.

5 Do an ./adb pull

Check that your computer is recognising your Android device by entering **./adb devices** into the Terminal. Next, you'll use **./adb pull** to move your device's SystemUI.apk file onto your computer. The location of SystemUI.apk can vary, but your Terminal command should look something like this: **./adb pull /system/app/SystemUI.apk.**

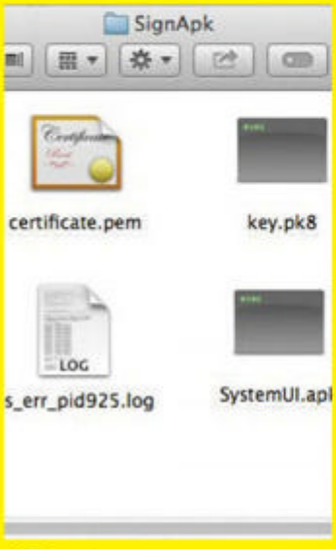


7 Decompile SystemUI.apk

Decompile your SystemUI file by running this Terminal command: **./apktool d SystemUI.apk**. A new SystemUI.apk folder will appear – open it and navigate to its 'res' folder. Depending on the ROM, you'll see different 'drawable' folders containing the battery graphics for your device.

8 Edit battery images

You can replace the existing battery images with your image files, or alter the existing files. Just ensure to keep the filenames, images sizes and image resolutions the same. Once done, recompile the SystemUI apk using the following Terminal command: **./apktool b SystemUI**.



9 Sign your APK

Sign your .apk by downloading SignApk from **http://bit.ly/1xeEWtn**. Unzip, then move your SystemUI.apk into the SignApk folder. Change directory so the Terminal is pointing at the SignAPK folder, then run: **java -jar signapk.jar certificate.pem key.pk8 SystemUI.apk SystemUK.apk**.

10 Use ./adb push

Finally, push your apk to your device. Change directory so the Terminal is pointing at your platform-tools folder, then use **./adb push** to push System.apk to the location you pulled first it from. Your command should read: **./adb push /Users/username/Downloads/SystemUI.apk system/app.**

HTC One M9

With the Galaxy S6 on the horizon, can HTC's new flagship realistically compete?

HTC is a company currently going through a transition. Financial struggles have led them to focus on releasing just a handful of devices every year, with a clear focus on a premium design and finish to help ease pressures from shareholders. Last year, we applauded one of the first devices to arrive from HTC's new outlook. The HTC One (M8) was not only a thing of beauty, but it outperformed nearly everything else on the market. However, it was soon swept aside by the juggernaut that was the Samsung Galaxy S5, and HTC were left licking their wounds with sales still not hitting where they should be. A year has passed since then and with further cuts being made behind the scenes, has HTC managed to finally release a device that can truly challenge Samsung with the gorgeous One M9? The jury is certainly out on this one.

Battery woes

For a device of its size, the 2480mAh could do with being considerably bigger. It struggles to meet the full day even though HTC has said it's capable of on above average use

Sensible software

Sense 7 still pales in comparison to vanilla Android, but the Android 5.1 update certainly brings the best features of Sense to the forefront. The added customisation features are worth checking out

All about that bass

One of the premier features of the M8 was its amazing Boomsound speakers. It's safe to say that the M9 follows this trend well and produces some of the best sound that we have ever heard on a smartphone

Déjà vu design

The word doppelganger instantly springs to mind when you look at the M9. There's no two ways about it, there's a little too much similarity between this and the M8. HTC has plumped for the full metal design that helped the M8 carve its own niche in the market, and while it certainly looks gorgeous from top to bottom, there's a real sense that there's been minimal innovation in this area. The eagle-eyed among you will notice the sharper edges of the M9, a welcome addition to those who were in constant fear of the slippery M8 falling from their grasp, as the new shiny exterior feels vastly superior in hand. The silver-and-gold version of the HTC One M9 also brings a new two-tone design to the flagship. A darker gunmetal grey model is always available, along with an all-gold version. All the usual buttons are present, including a much needed microSD port and the same powerful dual-speakers as before. The power button now sits beside the volume rocker. Compared to its dodgy placement at the top of the M8, having a side power button just feels natural; although it could do with some distinguishing feel from the volume keys. Upon our initial handling of the device, we thought we were supplied with a faulty handset, until we realised that trying to turn on the M9 with a volume button.

Solid screen

We would happily stick our necks out here and say HTC has never been a company to go

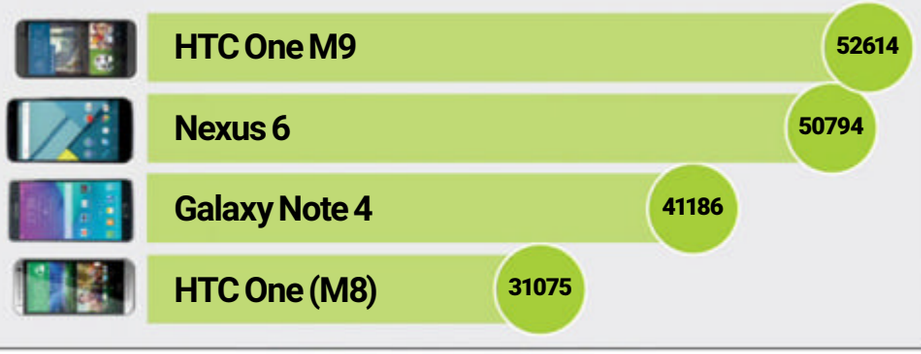
Say cheese
Although both cameras are a marked improvement over the M8, they're still littered with problems. Shooting in low light conditions still appears to be near impossible

Pure power
Having the power of an octa-core processor means that you're guaranteed to get excellent performance throughout. It can cause the device to occasionally heat up, though

Metal heaven
You can't argue that the M9's killer feature is its beautiful metal casing. It comes in a range of combinations as well, including silver and gold and silver and pink

AnTuTu benchmark

The phone's Snapdragon 810 processor offers super-fast speeds



overboard with the screen technology they look to utilise. With LG looking to equip their latest round of devices with QHD, HTC has played it relatively safe with their full HD offering in the M9 – again the same technology was used in the M8. However, to the naked eye, the differences between these two levels of screen technology are very minimal.

All in all, the M9 offers one of the clearest screens we've ever tested and while the contrast isn't perhaps to the same level as similarly priced devices, it isn't a major fault, but an annoyance for sure. Viewing angles are superb, especially for those wanting to catch a movie or two on the five-inch display, and the 441ppi outshines basically everything else currently on the market, bar a few. Undoubtedly, the comparisons between the M9 and M8's display are going to be made, but this is the one area that the differences are noticeable. This is a solid upgrade from what we have previously seen produced by HTC.

Performance and battery

No matter which way you look at it, 3GB RAM is always going to keep things moving along nicely, making the HTC One M9 a pleasure to use. Moving through menus has a real zip to it and it even has the power to keep boot times to an absolute minimum. But beyond its RAM, it's the M9's Snapdragon 810 octa-core processor that really has us licking our lips. Split between two quad-core processors, one clocked at 2GHz and the second at 1.5GHz, the extra power is split into different areas of the phone usage. It helps just make the phone easier to use, with better multitasking facilities being the key beneficiary to this added power. In some aspects, an octa-core processor could be seen as slightly overkill, especially for casual users, but the more seasoned and power-hungry users out there will certainly see the benefits.

All this power does have a serious impact on battery life, however. The included non-removable 2840 mAh achieved a comfortable day of use with our tests on average use, but through intensive use you can expect to get closer to 6 hours most of the time. Using some of the more battery intensive apps also causes some noticeable heating worries. Lets not forget a full metal device looks great, but it's certainly not the best material when it comes to keeping your device cool. It isn't as much of a problem with the M9 when compared to the heat issues with the M8, but it's something to think about when making a purchase nonetheless.

Sense 7 software

HTC's own custom skin, Sense, has undergone a massive transition the past couple of years. The latest incarnation on the M9, known as Sense 7, is the best version of it we've seen to date. Most of the same features and menus are

Review

HTC One M9

information

Price **£579.99/$649.99**

» More information
www.htc.com

» Supplied by
HTC UK

Battery life

The processor is a big drain on the already modest 2,480mAh battery, so expect less than a full day's charge

technical specs

- Operating system..... **Android 5.1 Lollipop**
- Processor..... **Snapdragon 810 64bit octa-core**
- Memory..... **32GBstorage/ 3GB RAM**
- Dimensions..... **144.6 x 69.7 x 9.6mm**
- Weight..... **157g**
- Display size..... **5.0-inch**
- Display resolution..... **1080 x 1920 pixels**
- Connectivity..... **Wi-Fi, Bluetooth**
- Expansion slot..... **microSD up to 128GB**

Performance
Octa-core configurations leads to one of the fastest devices on the market

Design
Although similar to the M8, this is still a beautiful device from head to toe

Features
Sense and Blinkfeed updates can't make up for another shoddy camera

Value for money
There are better alternatives on the market for a lot less money

»Verdict

A solid, but unspectacular device from HTC that gets the job done but doesn't really wow us

included and will be familiar to past HTC owners, but this time around there's a plethora of customisation options readily available to take for a spin. Through the new theming menu, M9 owners can adjust the icons and fonts used on the device, and we love the inclusion of the colour picker to help decide on the general colour scheme of the phone. As you'd expect, there's a bunch of themes already preinstalled, but through a new app, it's entirely possible to create your own from scratch. It's by no means a ground-breaking feature, but when you consider how other manufacturers hold the user's hands when its comes to customising, HTC are happy to let you loose and really personalise the M9 to your exact tastes. We also tip our caps to HTC's recent updates to Blinkfeed. We've been highly critical of the news gathering system before, but due in part to the processing power and with the M9 running Android Lollipop out of the box, it really is an absolute joy to use.

Camera correction

When the M8 was first announced, the UltraPixel camera they teased us with was set to be the next big thing when it came to smartphone photography. However, it flopped, massively. In the M9, the four megapixel camera has now been placed as the lead front-facing camera, adding a nice finish to any selfies you want to take, but it still pales in comparison to the whopping 13 megapixel offering of HTC's other handset, the Desire Eye. On the rear, HTC has plumped for a more traditional 20.7 megapixel sensor, alongside a f/2.0 lens. Where this combination shines is in areas with good lighting. The detail it can capture is incredible and the colours are up there with some of the best on the market, albeit still poor when compared to the Sony Xperia Z3. Although unquestionable improvements have been made, there's also some room for improvement. Taking photos in low-light conditions is still near impossible for the most part, while certain images come out over-exposed and way too bright for our liking. However, better images tend to be made when using the default camera app's HDR mode.

When you consider some of the devices that are newly released and the ones that will be turning up in the next few months, it feels that the M9 is in a bit of a quandary. With Samsung and LG set to release their next big blockbusters, which we'd predict will both sell in there millions, is there enough about the M9 to help it compete? On one hand, there's a lot of features that make this HTC's best device yet. It's certainly the best looking device on the market, and we wouldn't be surprised if we don't see a better-looking device until the M10 next year. You'd also be hard pressed to find a better performing device as well, and while the octa-core processor won't benefit the masses, hardcore users will certainly feel the boost. We also like the incremental changes to both Blinkfeed and the camera, but lets face it, HTC didn't really have to try too hard to trump last year's offerings. These upgrades aside, we're still struggling to see any real reasons why we could recommend this device over the M8, which has now been slashed in price. For now, we'd recommend you hold fire until we can put the Samsung Galaxy S6 under the microscope to see what your next compulsory Android purchase should be.

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Huawei Ascend G7

The Huawei Ascend G7 is a desirable handset if you want a large screen and don't have cash to spare

Thin and strong
A mere 7.6mm thick, the Huawei Ascend G7 has a metal back that makes it a tough handset which really puts other, more plastic structured budget handsets to shame

Vocal shooting
The two cameras have some surprises in store, one of which is the ability to record a short audio snippet to go with any photo. The recording starts as soon as the photo is saved, so be prepared

Big screen
The 5.5-inch screen has good viewing angles and it is bright, but some will feel it is let down by a relatively low resolution. It is clear that the screen resolution has been sacrificed to help meet the low price

Memory plus
There is 16GB of built in storage and a bit more than 11GB of that is freely accessible. If you need more, or want to hotswap music for example, a pop-out microSD card tray sits on the right edge

Emotion UI
Huawei's Emotion UI sits on top of Android. This adds a lot of different features, including plenty of themes. You soon get used to the absence of an Android app drawer – all apps sit on homescreens

good for... Budget friendly buyers
The relatively low cost of this handset means it will be very appealing.

Huawei Ascend G7

The Huawei Ascend G7 enters that crowded territory of the five to six inch screened handset. It's a phone size that pushes the boundaries of what most of us are prepared to carry in our pockets, yet the lure of a larger screen appeals particularly to gamers and anyone who reads a lot of text such as web sites, emails or even ebooks on their phone.

Moreover, with a price half that of most flagship phablets, the G7 is a real contender. So the question is, do the build and specifications really make it a bargain buy?

The outward signs are very encouraging. The build looks like that of a much more expensive phone. Metal makes up most of the back plate, while two strips of white plastic sit at its top and bottom, one housing the speaker, the other the camera and its flash. The back plate bends round into the edges, bleeding into a plastic front for the handset that's ever so slightly smaller than the back.

Needless to say, that metal makes this a very solid phone. It is thin too, at just 7.6mm, and though it is a bit on the heavy side at 165g, the weight lends some gravitas to the handset – by which we mean that it really doesn't feel like an inexpensive handset.

We've only got one real grumble about the design and that is the relatively large top and bottom screen bezels. To be fair to the Huawei Ascend G7, we often make this comment.

The back of the phone isn't removable, so your microSIM sits in a slot on the right edge. Next to it is a second slot for a microSD card. This can be used to add to the 16GB of built in storage. Our review handset had 11.2GB free,

> "The outward signs are very encouraging. The build looks like that of a much more expensive phone"

which should be enough for many users. If you want to hotswap music or other data too, then it is easy to do.

Huawei makes a big deal of the two cameras – on the back is a 13 megapixel shooter, and on the front is a five megapixel camera with its own panorama mode. There are other camera features aimed at selfie fans, such as beauty mode and auto-capture when a smile is detected. You can also add audio notes to shots (pick this option, shoot a photo, then record up to ten seconds of audio automatically). We like the ability to separately set the focus point and light metering point by dragging two icons on screen – it's an interesting feature that can give you control over the ambience of a photo. It's a great effort for a budget handset.

We said the large screen can have appeal for readers and gamers. The good news is that the viewing angles are wide and the screen is also quite bright. The bad news is that the resolution is just 1,280 x 720, which isn't great for a 5.5-inch screen and offers just 267ppi. The screen resolution is a clear compromise to help Huawei reach its price.

Android 4.4 is accompanied by Huawei's Emotion UI overlay. Among its many features is the absence of an app drawer – instead apps sit on home pages – and there are oodles of themes that you can apply to help personalise the Ascend G7.

The quad-core 1.2GHz Qualcomm Snapdragon processor has 2GB of RAM in support and it seems very efficient. Certainly all but power users should find it is up to their requirements, though as already noted, gamers may hanker for a higher resolution screen. The 3,000 mAh battery might end up being an issue for anyone wanting to game, read or listen to music for long periods, and access to the mains during the day or early evening might be good thing.

Huawei has done a good job with the Huawei Ascend G7 giving it features that for the most part belie its price. The screen resolution and average battery are the two features that potential owners should be most wary of.

Taking selfies
All photos, including selfies, benefit from some neat camera features.

Surviving the knocks
Unlike many budget handsets, there's lots of metal in the back plate which is fairly robust.

Fast data
The Huawei Ascend G7 is a 4G handset, so you can take advantage of ultra fast data speeds.

information

Price **£199.99/$TBC**

- More information **huawei.com**
- Supplied by **Huawei**

Battery life

The 3,000mAh battery is best described as average, and it sits behind a non-removable backplate

technical specs

- Operating system ..... **Android 4.4**
- Processor ..... **1.2GHz quad-core Qualcomm Snapdragon**
- Memory ..... **16GB storage / 2GB RAM**
- Dimensions ..... **153.5 x 77.3 x 7.6 mm**
- Weight **165g**
- Display size ..... **5.5 inch**
- Display resolution ..... **1,280 x 720 pixels**
- Connectivity **4G**
- Expansion slot ..... **microSD**

Performance
Given the price, the general performance is strong on the Huawei Ascend G7

Design
A solid build and attractive looking design make this phone a budget winner

Features
The Huawei Emotion UI adds a lot of pluses and there are some neat camera features

Value for money
Only the low-resolution screen really disappoints in value terms

»Verdict

The Huawei Ascend G7 punches way above its price-point, with just the low screen resolution letting it down

ZTE Blade S6

The S6 is ZTE's latest attempt to recapture the magic of the original Blade, so how does it fare?

Back in 2010, ZTE launched the original Blade. With a 3.5" WVGA display – that was a big screen at the time – and a Qualcomm Snapdragon processor, it was an unexpected hit, with specifications that belied its bargain price and support from a vibrant modding community.

Fast-forward to 2015 and we have what feels like a spiritual successor to the original device. Many Blades have come and gone, but this is arguably the first one to capture that special blend of ingredients to truly make a low to mid-tier device a great.

What makes the S6 special, and what made the original so coveted, is that it breaks with the formula used by so many of its rivals. Non-premium processor? No – the phone has a 64-bit, octa-core Qualcomm Snapdragon 615 on-board. Outdated and heavily modified operating system? On the contrary – the Blade S6 is the first device to ship with Android Lollipop on top of the 615 chipset. A shortage of RAM? Not in the slightest – the 2GB found on this phone matches the specs of all but the very best of flagships. Meagre internal storage? Hardly – with 16GB it matches the Sony Xperia Z3 (which is more than three times the price) and it can also be expanded via microSD. The list goes on. Add in dual band Wi-Fi, a vast array of sensors, an impressive 5-inch screen and even a high-end Sony camera sensor, and it soon becomes clear that the device really packs some punch for the price.

Of course, the Blade S6 clearly isn't up to flagship standard in its entirety, so where have the corners been cut? Primarily in design and, to a lesser extent, in materials. The device is a rather blatant tribute to an iPhone 6, even down to the 'Designed in California' text on the back of the case. Subtle? Not at all.

That's not to say that the design doesn't work. As you'd expect, it feels as good in the hand as an iPhone does. The device is completely plastic, but it is good quality plastic, with minimal flex and an attractive silver finish on the back. Without the need for antenna isolation strips, the design actually looks less fussy than it does on Apple's device. At 7.7mm thick it feels suitably slimline which is surprising given that it has a 2,400mAh battery on board.

The front of the device is white, with three blue backlit capacitive buttons at the bottom

Snapdragon

The Blade S6 includes the impressive Snapdragon 615 – Qualcomm's first octa-core solution – which includes a powerful CPU and GPU, onboard video processing and the useful QuickCharge capability when used with a supporting charger (not included in the box)

Lots of storage

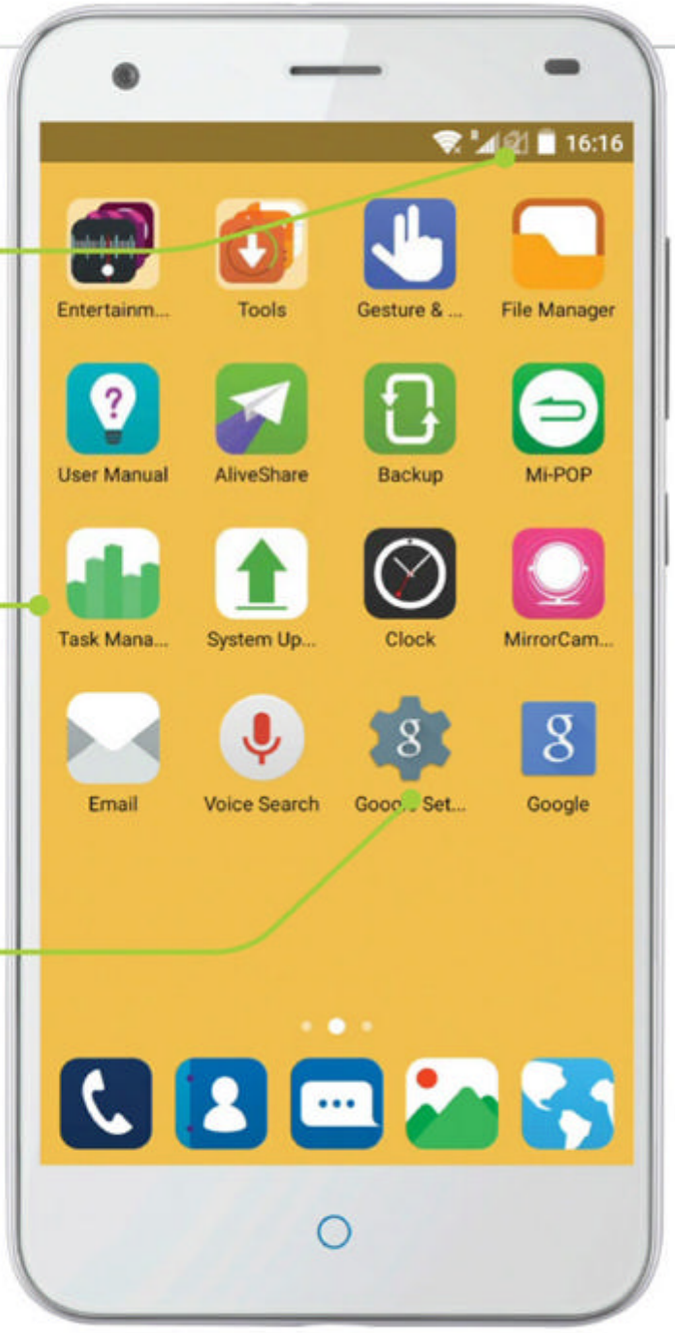
As well as having a powerful CPU, the Blade S6 doesn't skimp on RAM or storage, with 2GB and 16GB respectively. This is also expandable courtesy of a microSD card slot that supports cards up to 128GB in size

Camera

Photography is given a high degree of importance on the Blade S6 – as well as a 5MP front camera, the device includes a 13MP Sony rear camera, which is far superior to that included on previous ZTE devices

good for... **Trying out Lollipop**

The Blade S6 is a great way to try Lollipop on hardware that makes the most of it.



LTE support
The Blade S6 includes LTE support in one of its dual SIM slots. Unusually for a device of this type, band support is wide ranging, meaning that all UK operators are supported, including the future band 20 rollout by Three

Well connected
The phone has a full array of connectivity and sensors including dual band WiFi, Bluetooth 4.0, an accelerometer, compass and gyro as well as a sensor hub, enabling applications to make use of sensor data when the device is asleep

Lollipop 5.0
The Blade S6 runs Android 5.0 Lollipop, giving it an immediate advantage over many of it's rivals. Customisations are fairly minimal but include support for additional features such as gesture and motion controls, and tools for the dual SIM functionality

which, while marked with just dots, perform the back, home and menu functions (a long press on the menu button opens the recent apps page). The front is, of course, dominated by the 5" 720P IPS screen, which includes in-cell touch technology and is an extremely impressive, responsive screen. Together with the speedy processor and snappy OS (Lollipop with it's ART runtime), it makes for a great experience.

ZTE are keen to promote the camera experience on the Blade S6, specifically highlighting that the phone has the Sony IMX214 on-board, which is also found in the Xiaomi Mi4, OnePlus One and other high-spec, low-cost devices. ZTE's claims of 'SLR quality' are more than a bit optimistic, but it does take great shots, helped by a camera application that can be used in a fully automatic mode or in an expert configuration, which offers a wealth of manual controls. The front-facing camera too is impressive, with automatic beautify and smile shot modes to use.

The Blade S6 includes what ZTE call 'Hi-Fi' sound. In reality, the device includes only a single speaker on the back of the device (with the tiniest of dimples to keep it lifted when placed on a flat surface) and while the quality is pretty reasonable, it's not particularly loud and you're never going to get great stereo sound from a single speaker.

Video watching
Ideal for videos with it's impressive IPS screen and powerful video decoding hardware.

Music listening
The Blade S6 lacks forward facing speakers, but the Hi-Fi audio is good for music listening.

Selfie snapping
Perfect for taking selfies, the five megapixel front facing camera produces great results.

ZTE Blade S6 information

Price **£169.99/$249.99**

» More information **www.ztedevice.com**
» Supplied by **ZTE**

Battery life

The 2400mAh battery in the Blade S6 easily lasts a full day as the modern processor is surprisingly frugal

technical specs

Operating system	**Android 5.0**
Processor	**Qualcomm Snapdragon 615 octa-core 64-bit**
Memory	**16GB storage/ 2GB RAM**
Dimensions	**144 x 70.7 x 7.7mm**
Weight	**134g**
Display size	**5.0-inch**
Display resolution	**1,280 x 720 pixels**
Connectivity	**4G LTE**
Expansion slot	**microSD**

Performance
The Blade S6 has a powerful chipset with plenty of RAM and a well-optimised OS

Design
The design is clearly a tribute to another aspirational brand. It's a bit unimaginative

Features
Everything you could want at this price point and more is included

Value for money
As LTE continues to filter down to cheaper devices, they now offer incredible value

» Verdict

Only the lacklustre imitation iPhone design cost the cutting-edge ZTE Blade S6 a coveted 5/5 score

Honor Holly information

Price **£89.99**

» More information **www.hihonor.com**
» Supplied by **Honor**

Battery life

The battery won't see heavy gaming fans through a day, but casual users should be just fine

technical specs

- Operating system..... **Android 4.4**
- Processor..... **1.3GHz Quad-core Mediatek MT6582**
- Memory..... **16GB storage/ 1GB RAM**
- Dimensions..... **142.2 x 72.3 x 9.4 mm**
- Weight..... **156g**
- Display size..... **5.0-inch**
- Display resolution..... **1,280 x 720 pixels**
- Expansion slot..... **microSD**

Performance
You can't expect a top-notch handset at this price, but it does a good job

Design
A plastic and somewhat chunky build with a lot of screen bezel

Features
Short on extras beyond the UI, though you can configure scheduled on/off times

Value for money
Honor's price hacking scheme has made this an affordable handset with lots of features

»Verdict

A well priced Android handset with two SIM slots and a large screen, but no 4G and quite a chunky build

Two SIMs
No, you can't double the speed of your data by using two SIMs at once, but what you could do is have your main SIM and a temporary holiday one stored in the same phone

A large phone
The five inch screen sits inside a fairly big bezel and the Android buttons are underneath, so the casing is relatively large

Emotionally sound
The Emotion UI overlay to Android has its own distinctive look – including no app screen. Instead, apps are stored on homescreens either singly or grouped into folders

Plenty of storage
With more than 12GB of storage free on the device and the ability to add more via microSD this could be good if you like access to lots of files (movies, music, you name it)

Honor Holly

The Honor Holly is the first handset where you set the price, and it's a budget price at that

It isn't often that we encounter a true first with a smartphone these days, but we have with the Honor Holly. Intriguingly, when the Holly was launched, Honor said the number of online registrations of no obligation interest in the handset would control its price: more interest equals lower price. Starting at a price of £109.99, the online interest has lowered the phone's value to just £89.99, which has been made the final, confirmed purchase price.

What you get for the money is an interesting combination. The build is nothing to write home about. It has a lightweight, plastic feel to it and there's a lot of bezel around the five-inch screen so that the handset looks and feels like a budget buy. The one plus point of having the Android back, home and menu buttons below the screen is that there's a bit more screen space available for apps to use.

The screen is an IPS LCD panel which has reasonably good viewing angles. The 1,280 x 720 pixel resolution is somewhat behind the leading edge but the text and images are sharp enough. Screen brightness doesn't go as high as some though.

There's a fairly healthy 16GB of built in storage, of which 12.9GB is free right out of the box. You can add more storage using the microSD card slot that's under the back plate, but hot swapping is ruled out as you have to remove the battery to get to the card.

Also under the back plate you'll find two SIM card slots. Dual SIM handsets have always been rare, and it is really nice to see one at such a low price. You don't have to use two SIMs all the time, of course. You could reserve the second slot for your low cost travel SIM when you're on holiday.

The quad-core 1.3GHz Mediatek MT6582 processor is backed by 1GB of RAM. It is not a bad combination and gives this budget handset enough oomph for everyday situations.

Android 4.4 has the Emotion UI sitting on top (the Honor range comes from Huawei). As with other handsets bearing this UI, there's no app drawer. Instead, apps sit on the homescreen and you can drop them into folders to keep things tidy. This may be jarring if you are switching from another Android handset, but it doesn't take long to get used to.

The other specifications are nothing fancy – GPS, Wi-Fi b/g/n, Bluetooth 4.0. The 8 Megapixel main camera is good enough for the odd snap to share on Facebook, but you'll need a dedicated camera for 'proper' shots. There's no NFC, no infrared, no Wi-Fi ac and no 4G. The battery is not huge at 2,000mAh – heavy users might not like this phone.

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Karbonn A19 information

Price **£85.51/$TBC**

» More information **www.karbonnmobiles.com**
» Supplied by **Karbonn**

Battery life

The A19 only houses a 1,600mAh battery, but with few features to drain power it'll give you a full day's usage

technical specs

» Operating system	**KitKat 4.4**
» Processor	**Dual-core 1.3GHz MTK 6572 processor**
» Memory	**4GB storage/ 512MB RAM**
» Dimensions	**146 x 72.3 x 9.2mm**
» Weight	**116g**
» Display size	**5.0-inch**
» Display resolution	**854 x 480 pixels**
» Connectivity	**3G, Wi-Fi**
» Expansion slot	**microSD**

Performance
Videos played well but general performance lagged and apps were slow to load

Design
The back feels cheap thanks to plastic backing. The shape and weight is good

Features
It comes with standard preloaded Android apps as well as Opera browser

Value for money
This is at the lowest end of the market and you get what you pay for

» Verdict

The Karbonn A19 is a decent, cheap phone but there are better out there for the price

Dual-sim
The A19 has space for two SIM cards. One slot supports 3G and the other supports 2G, so make sure any SIM card that has a data allowance goes in the SIM1 slot. Users can then switch between two different numbers without carrying two devices

Expandable storage
The very limited internal storage in the A19 means that a microSD card is almost certainly required. It supports up to 32GB, so this is definitely not a phone for the app, music or game-hungry smartphone user

Left is right
The power and volume buttons are placed on the left-hand side of the device, with the microUSB on the right. If you are left-handed and haven't just got used to using your index finger to control your device, this could prove useful

Karbonn A19

Can the A19 be the crucial element in Karbonn's bid to secure the low-end mobile market?

Indian smartphone manufacturer Karbonn is best known as one of Google's Android One partners. However, it has also made a couple of attempts to crack the Western market, with mixed results. Unfortunately, we don't think the A19 is going to have much of an impact either.

The handset is decent looking from the front, with thin bezels and the nicely rounded edges of a Samsung S3. The back, however, reveals a cheap-looking plastic chassis, which has the sole saving grace of being fingerprint-resistant. The power and volume buttons are on the left-hand side, which is the reverse of nearly every other smartphone available on the market, so takes some getting used to.

Budget phones always lack memory, but the A19 has just 4GB, even before system apps take the lion's share. It doesn't take many apps, games and photos to reach capacity, so its a good thing Karbonn also provide a microSD slot.

It runs off a 1.3GHz dual-core MTK 6572 processor, which is rather slow at times with only 512MB RAM, the handset doesn't handle more than one memory-hungry task at a time very well.

The 5-inch display has a lowly 196ppi pixel density and we also had concerns about how responsive the capactive touchscreen is. However, the screen's biggest failing is its the field of vision. There is an enormous shade difference when you tilt the phone vertically. The screen goes from so dark you can barely see it, to very bright so you've got no idea if you've taken a well-exposed photo or not.

On the subject of the camera, the A19 has an eight megapixel camera with flash on the rear and a five megapixel camera on the front. The set-up is limited with only a handful of functions for either camera. The ability to alter the exposure on both cameras is a nice feature and you can change the settings depending on the lighting.

There are a few photo filter modes too for post-editing thanks to the features built into the A19's KitKat 4.4 OS. Karbonn have added there on skin to the stock Android, such as adding rounded app icons, but it is not overbearing.

The phone is aggressively priced at £85.51, but unfortunately for Karbonn that takes it right into Moto E and EE Kestrel territory and both models are infinitely superior.

Budget phone manufacturers will inevitably always have to cut corners somewhere, but as the A19 falls short in the build quality, screen and specs stakes, there are just too many downfalls to make this a worthwhile purchase for anyone other than the first time smartphone user.

Curved design
The Liquid Jade S is just 7.8mm thick, and its curved edges give it the appearance of being even thinner. It's comfortable to hold

Two SIMs
Dual SIM handsets are rare, but Acer's way of implementing the idea is rarer still. You choose between a second nanoSIM and a microSD card

Extra apps
Acer likes adding extra features to Android, and there are plenty here. Lots of add on apps, like Polaris Office, are augmented by a range of 'floating apps' you can call up as needed

Eight cores
For a low-cost handset to be able to run the very latest games is great, and the octa-core processor makes sure that is the case. You should be able to run whatever you want without experiencing any trouble

Acer Liquid Jade S

The Acer Liquid Jade S is a midrange marvel with some nice surprises in store

Acer's latest smartphone is an octa-core mid-ranger that is built to catch your eye with its thin looks. At 7.8mm thick the Liquid Jade S doesn't break any records, but the curved edges give the appearance of being even thinner. Combined with a weight of just 120g, it feels very comfy in the hand and it slips into the pocket neatly too. The slightly rough finish to the back helps with grip when holding the phone.

The build is quite solid – unlike many handsets at the budget end of things, we couldn't bend it a great deal in our hands and there was no 'chassis creak' as we tried to do so.

There's a novel feature hidden away that might grab your attention. Pull out a tray on the left edge of the chassis and you can slot in a nano-SIM and a microSD card. Or, if you don't want a microSD card, then you can pop a second nano-SIM in its bay instead. Admittedly we would rather not have to choose between SIM and storage, but the option to use a second nano-SIM could come in very handy at times.

The 5-inch screen is a fairly good quality 1,280 x 720 pixel IPS LCD panel. Sit it against a top end handset and its shortcomings will be apparent, but it is good enough for reading text and watching videos. Our major problem was not with the panel but that the glass is quite reflective and didn't always make for easy viewing.

The Liquid Jade S runs on Android 4.4 (KitKat), and on top sits Acer's own skin. Acer has dropped in some neat features. One that we like is the 'floating apps' which can be called up to sit on top of whatever else you are doing if you hit the app switcher button. There are two different memo apps – one with drawing and one for text, a mini camera interface, browser, calculator and timer.

The main camera shoots reasonably good 13 megapixel photos, and you can use the centre of the volume button to take photos or touch the screen if you prefer. If you are using the front camera you just have to say "selfie" and, well, you can guess what happens.

The octa-core processor has 2GB of RAM supporting it and it is a competent performer. It should be up to even the most power hungry of games. The downside of having such a capable processor is that the 2,300mAh battery struggles a bit and you may find yourself seeking out mains power fairly often. Non-gamers might get a day between charges though. There's 16GB of built in storage and 11.6GB is free out of the box.

Review

Acer Liquid Jade S information

Price **£229/$TBC**

» More information **acer.co.uk**
» Supplied by **acer.co.uk**

Battery life

The 2,300mAh battery has to work hard to keep up with the needs of the powerful processor

technical specs

Operating system	**Android KitKat 4.4**
Processor	**1.5GHz octa-core Mediatek**
Memory	**16GB storage/ 2GB RAM**
Dimensions	**143 x 69 x 7.8 mm**
Weight	**120g**
Display size	**5.0 inch**
Display resolution	**1,280 x 720 pixels**
Expansion slot	**microSD**

Performance
The 1.5GHz octa-core processor makes a good fist of what's thrown at it

Design
Solid construction and well thought out design ensure the handset's 'bend-proof'

Features
Some nice extra feature, but irritating to drop microSD for second nano-SIM

Value for money
The device is slightly overpriced for the features on offer here

»Verdict

Overall a well-designed handset, but probably a bit more expensive than it really needs to be

Maplin Android TV Dongle

Although a lot of television is now binge-watched online, there is still an audience for live TV. However, if you're out and about and won't be in time to catch your favourite show, the Android TV dongle can help. This tiny device is around the size of a fun size chocolate bar, but can open up a world of TV on your device. Set up only takes around ten minutes as you attach the antenna to the tuner, download the app, find an area of decent signal and scan for channels. The device is capable of picking up all the major Freeview channels, although when we tried it out the maximum we picked up was 27 and none of the BBC channels were among them. That may just be a signal or a TV licence issue, however.

It took quite a bit of manoeuvring to get a decent signal but once we did it worked superbly, delivering a high quality TV signal – although it didn't take a major interruption to send the screen into a flickering frenzy. The app is simply laid out and you can record programs for viewing later. The fact that it doesn't need a internet connection is great because as long as you are somewhere with a TV signal, you can watch TV wherever you are and not eat into your data allowance.

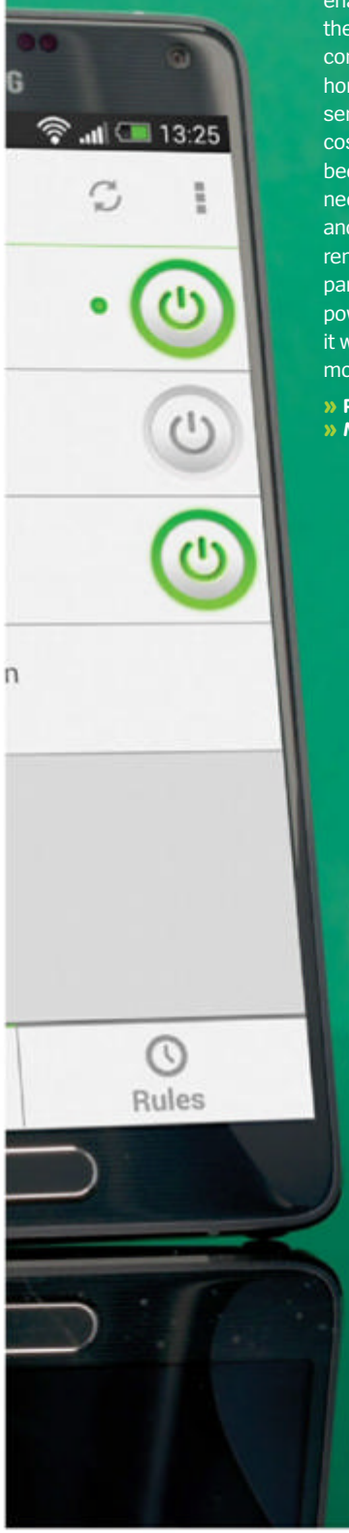
This is a neat device and works with a little bit of encouragement, but we do feel obliged to warn you that you might not always get a full suite of channels and you'd need a steady hand to make sure you don't lose signal at a crucial moment.

» **Price** £49.99/$TBC
» **More information** www.maplin.co.uk

Belkin WeMo Insight Switch

Walking into a cold or dark house can be a miserable experience, so what if you could switch on a lamp, heater or your kettle before you've even entered your home? The WeMo Insight switch can help. Plug it into a socket, plug your chosen device into that, connect it to your home's Wi-Fi, and you can switch it on or off from the app on your phone. The app is really well designed and easy to use, even enabling you to pre-program the switch to turn on or off at certain times, so you can set the kettle to start boiling as soon as your alarm goes off. You don't need to be connected to your home network, so you are able to control appliances inside your home from anywhere that you have an internet connection, which is very useful. It also sends you notifications about what is being used, for how long and how much it has cost you, so you can see where you can make energy and financial savings. This may been seen as slightly gimmicky, as turning things on or off from a distance is rarely necessary and at £50 it isn't cheap, but it should help you make savings in the long-term and could put your mind at rest if you're heading away from the house and can't remember if you've turned the lights off. The actual product itself is quite bulky and not particularly attractive, however. The thickness could put people off and the big circular power indicator on the top is rather unnecessary. We are hoping that future versions of it will be a little slimmer, but in terms of the technology and the potential energy and money saving, this is a great little device.

» **Price** £49.99/$59.99
» **More information** www.maplin.co.uk



Smart tech

Hive

Control your thermostat with a tap of your phone with Hive. To many people, the thermostat or boiler can be a confusing place, so this accessory digitises the thermostat and places it on your smartphone so you can alter the heating settings and set timers from wherever you are. You'll need an engineer to come round and set up the device and it works with Android 2.3 and up so you should be able to work it easily.

Nest

Nest is another device designed to make altering your heating settings at the flick of a finger. The app is really easy to operate and the device itself looks stylish. Nest also has a smoke and carbon monoxide detector that can be controlled via the app on your Android device. It learns your habits so can intuitively know when to turn your heating on and off, which is handy.

Tado

Tado's big selling point is its presence detection. This app-operated thermostat is able to realise when there is no one in the house and alter the heating settings itself, saving you a bundle of cash in case you've forgotten to drop the heating down if you're on holiday, for example.

Amazing earbuds

We test out the latest headphones that are dominating the market

Sennheiser CX 5.00G

» **Price** £69.99/$89.95
» **More information** www.maplin.co.uk

One of the main problems a lot of people have with in-ear headphones, is that they feel uncomfortable when pushed far enough in to stay secure. The Sennheiser CX 5.00's ergonomic earbud design makes for an incredibly comfortable listening experience. The bass is pretty good without being spectacular, and the sound quality overall is excellent. While not marketed as noise-cancelling, they do block out a lot of exterior noise. Secure, comfortable and great quality music playback, these are most definitely worth the money.

EDITOR'S CHOICE ★★★★★ Android magazine

RHA T10 earphones

» **Price** £139.95/ $189.95
» **More information** www.rha-audio.com

The RHA T10 is an excellent piece of engineering. The stainless steel earphones are injection moulded, they have three pairs of tuning filters for normal music, increased bass or increased treble, and there are 10 different earbud options. These produce excellent sound and have great noise-cancelling, with just one flaw: the metal casing on the earbuds are very heavy. You can't keep them in for more than an hour or so and, even when the cable is hooked around your ears, we found that they fall out easily when on the move.

KS Hive Buds

» **Price** £20.99/$TBC
» **More information** www.kitsound.co.uk

Kitsound has produced a comfy pair of reasonably priced in-ear headphones with 11mm drivers that create a rich, clear sound. The range isn't spectacular, but as long as you aren't listening to a thumping low bass, you will have a good experience with these. The non-tangle cable does exactly what it claims, though the material does look a little cheap. It's not great looking, but if all you're after is a good, cheap pair of headphones, these could be on your list.

Trendz in-ear headphones

» **Price** £10.00/$TBC
» **More information** www.ontrendz.com

The Trendz earphones are the cheapest of the bunch, but you don't lose much in terms of quality. They are a little tinnier than the others but you don't lose clarity at all, which is a surprising positive. Style-wise the gold ones are a little garish for us, but the silver ones look a lot sleeker and there is also a space grey option. The button on the track skipper is a bit too small but otherwise these are quality headphones.

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Citymaps

Navigate your city by the best recommendations

EDITOR'S CHOICE ★★★★★ Android magazine

2 hour wonder

Want your money back? You've got 120 mins to decide!

»0-40 minutes
The app is very easy set-up and get started on quickly

»40-80 minutes
We have started tagging and liking some of our favourite places

»80-120 minutes
Zoned out in the ideal restaurant to have dinner

keep refund

New to Android, City maps enables you to build up a image of your home town through tagging and recommendations. GPS pinpoints your location and brings up a load of potentially interesting locations, such as eateries, theatres, gyms and bars. If you're a fan you can add them to your favourites list or just leave a tip for your neighbours and friends to follow.

This is an excellent app for people who want to explore and learn more about the city they live in, but it's also handy for navigating. Say you are in an unfamiliar part of town and want to get to a particular restaurant, for example. Instead of messing about with postcodes or road names, just bring up your Citymaps, dip into your favourites list and you've got a destination. After tapping on a location you can tap the car icon and it will show you the best route to your destination from your current spot via car, foot or public transport, so you won't even need to plan your own route to get there.

This will also be a very handy app for anyone on their travels. The app flags up notable map creators in your area who you can follow. You can then view their maps to get recommendations on local restaurants and places of interest, putting an end to gambling on dodgy bistros or wrestling with maps while on holiday. Each pin will come with a comment so you can even find out why that place in particular was recommended, which is incredibly useful in an unfamiliar city.

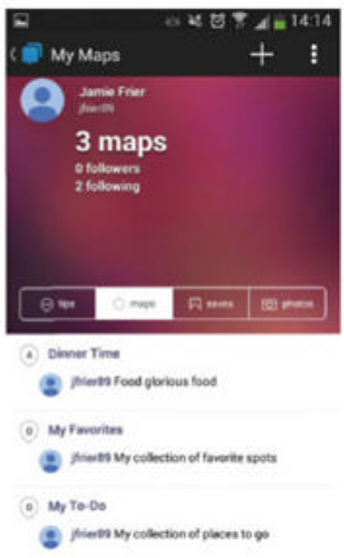
However, you don't even need to follow someone for comments. Tap on an icon and it will bring up all the tips, negative or positive about it. We would have liked some kind of rating system like TripAdvisor, but that may be something that they choose to add in later editions.

The fact that you can create multiple maps is another benefit to this app. Theming maps around food and drink, culture or sporting venues makes navigating around an area much easier. If you think of it like your phone book, each personalised map is like your favourites or most-called list, which saves you from scrolling through every your contacts every time you want to make a call.

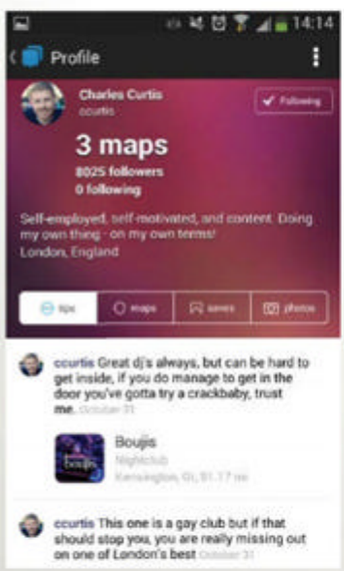
There is also a newsfeed-style section that keeps you up to date with the activities of the people you follow so you don't miss a hot new tip from a map maker you trust and you could even find new people to follow, building up your knowledge of the city.

Citymaps is effective as a map app in which you can save your favourite destinations, a place for finding out what hidden gems other people in your city have discovered and a guide book for places you're unfamiliar with. It is extremely easy to use and maps can be created about anything, from favourite Italian restaurants to the best museums to visit on a Saturday. Citymaps tries to be both a map and a social network app and it achieves both of these aims rather admirably.

Find your way around local landmarks



Make your own maps based off your likes



Follow people who know the area for local tips

»specification

Price **Free**

Designed for: Phone and tablet

Requires Android: 4.0.3

»verdict

Performance

Design

Value

An excellent app, easy to use and useful for adventurous types

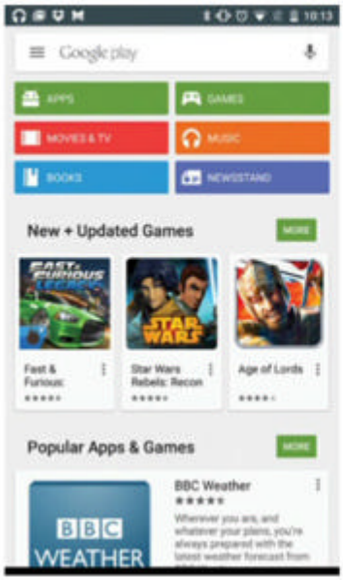
»best free alternative **CITYMAPPER »** It hasn't got the social aspect but offers real-time traffic and transport information and routes

Google Play Store

Quite literally the one-stop shop for apps and games for Android, we spend a lot of time on the Google Play store. While it is easy enough to navigate around, it's not perfect. However, Google has looked to rectify this with a few changes that won't revolutionise the world, but will make the overall experience a little more pleasant.
The screen you reach by tapping on an app has undergone a Material Design change for when you have your device in landscape. The Open or Uninstall menu has slimmed down so it's no longer uncomfortably stretched across the entire length of your Android device.
The second change Google has made is getting rid of that frustrating action bar at the top of the screen that usually lingers over text while you're scrolling down through an app's description. It re-appears once you scroll up again, so this gets a big thumbs up from us for usefully clearing the screen a little.
Finally, the Notifications gets its own section in the Settings menu. Now, instead of a single option regarding your app notifications, you can choose to get notifications when app updates are available and when they have auto-updated to get notifications for just one of them or neither. This should prevent unwanted distractions when an app has had a minor update that you don't really need to know about.
Google has definitely made a step in the right direction with pushing through these changes, as they certainly make the Google Play store a better app to navigate through.
These changes are coming through to users automatically so you shouldn't have to worry about doing anything, but if you are especially keen, you can update your Google app to force it through just that little bit quicker.

» like this? try this!

Manufacturer app store
Other app stores exist for Samsung, HTC or other major smartphone manufacturers



The Google Play store has been updated with new features

» specification

Price **Free**
Designed for: Tablet & Phone
Requires Android: Varies with device

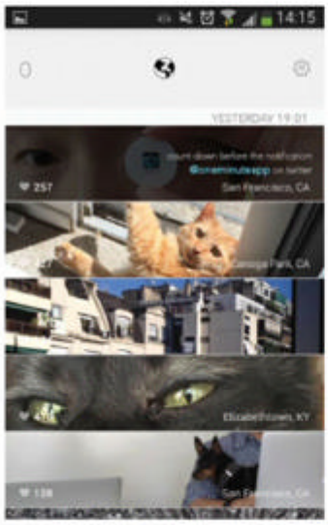
» verdict

A nice, handy update that has sorted out some of the minor irritations

Oneminute

View snapshots from around the world

Oneminute takes the idea of social photo-sharing apps like Instagram, and ramps up the pressure. While an Instagrammer can take ages composing a shot and trying out filter effects, oneminute gives you – you guessed it – just 60 seconds to take your snap. To make it even more pressurised, you can only take one photo a day and even then it's at a random time of oneminute's choosing. If you manage to get the notification, find something interesting to photograph and snap it in time, oneminute uploads it to a gallery where any oneminute user can browse it. A nice idea, but the shots come out a bit blurry sometimes and the photo gets cropped to a thin strip that can be a little tough to see. With a better camera app and the option to expand a particular photo, this would be excellent.



» **Price** Free
» **Designed for** Phone and tablet
» **Requires Android** 4.0

» best free alternative **PINTEREST** » Pinterest provides a near unlimited store of images on an incredible range of subjects for you to browse

PhotoMath

Solve those tricky sums in an instant

If you're ever stuck with a difficult maths problem and don't want to mess around with brackets and square roots on your calculator app, it could be worth downloading PhotoMath. This app reads basic and intermediate maths problems and solves them instantly. If you are really keen to cheat on your homework, it even shows it's working out so you know how it got there. It's very easy to use and reads printed text well, although it can't read handwritten sums yet and Fermat's Last Theorem is a little beyond it too!

» **Price** Free
» **Designed for** Phone and tablet
» **Requires Android** 4.1

Screenpop

Force your friends to have a look at your pictures

Snapchat became hugely popular for the way it let friends send embarrassing ten second photos to each other. Screenpop Lockscreen Messenger does much the same but invades your friend's lockscreen instead, only disappearing when they unlock their phone. This does leave the sender more open to the recipient taking a sneaky screenshot, but it does feel a bit intrusive for the recipient as it removes their choice in whether to open the image or not. Screenpop is fun to play with, but leaves us a little uneasy.

» **Price** Free
» **Designed for** Phone and tablet
» **Requires Android** 4.0

iAnnotate

Easily edit and mark up all of your PDF files

The popular iOS app comes to Android, bringing with it bright and colourful ways to annotate your documents. It opens PDFs nice and quickly after a basic tutorial showing you how to do the basics, such as draws lines, shapes, highlight words and add in text boxes. Once loaded you can do all of the above to your PDF documents. That is a fairly limited range of actions but if you're looking for an easy, basic PDF editor, then this is a pretty good option. One problem is that the highlighter is rather over-responsive, liable to highlight much more than you want. There is also no easy way to delete something you've done if you've saved it, so don't change your mind about highlighting something. There is the option to share your work via a range of options and switch easily between documents by tabs at the top of the page. There isn't a lot to shout about with this app but it does just enough to be worthwhile getting for your basic PDF editing needs.

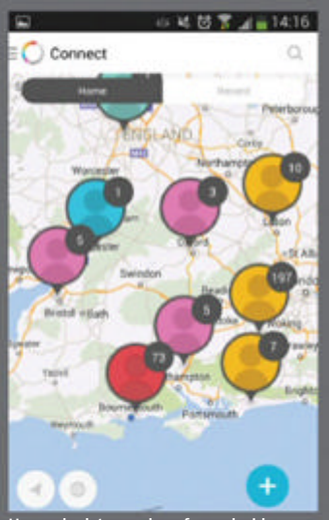
Quickly and easily mark up important PDF documents with iAnnotate

» **Price** Free
» **Designed for** Phone
» **Requires Android** 4.1

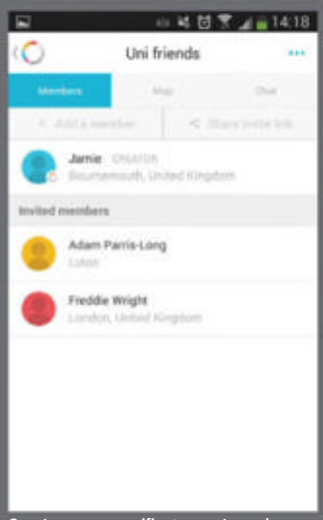
Connect

Bring all your contacts together in one app

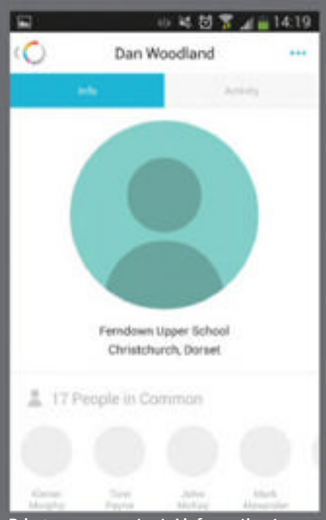
Keeping connected with your contacts is pretty important, which is why Connect exists, an app that syncs all your contacts from all your social networks into one app. Launching the map enables you to see where all your various contacts list their hometown as, no matter where they are in the world. This can be especially useful for organising a meet up in a central location between university friends who are spread all over the country. You can choose which of your groups, such as Facebook, Gmail, Twitter or your phone book, are activated so you can narrow down your searches. You don't want to be getting results for all the random people you follow on Twitter if you're trying to find your school friends from Facebook. The app also lets you see when out-of-town friends come to visit. If someone who doesn't live in your area checks in or is registered within a certain radius of you, you can opt to get a notification saying that they're close. While this could prove a useful feature for making sure you don't miss a potentially rare opportunity to meet up with a friend, it could lead to some awkwardness if there was a reason they didn't let you know they were in town!



Have a look to see how far and wide your contacts are scattered



Create more specific groups to make sorting a bit easier



Bring up your contacts' information to connect with them

Alt-C

EDITOR'S CHOICE Android

Copy and paste between Android phones and Windows PCs

If you want to transfer a load of text over from your phone to computer or vice versa, Alt-C will happily help you out. This smart app connects all of your devices together into one network, so if you've been doing work on your Windows laptop you can press a couple of buttons and it will appear on your tablet's clipboard within seconds. The two devices don't even need to be working off the same network as long as there is an internet connection for both. This app is really easy to use as each switch of text only requires you to highlight the text and press the 'hot-key' to transfer it over. If you are constantly switching between devices while writing or reading text, we would highly recommend giving Alt-C a go as it's a really simple and effective app to use.

» **Price** Free
» **Designed for** Phone and tablet
» **Requires Android** 4.0

Alt-C never forgets what text you've copied

» like this? try this! **PUSHBULLET** » The current go-to app for syncing your Android devices with PCs to make file sharing much easier

It can also alert you when certain people that you've listed as your favourites or people within a certain radius post a status or tweet.

This is a well-designed app and does provide a good service, keeping you up-to-date with the movements and activities of your friends, but it does seem a little bit unnecessary as we're not sure we'd want people knowing our every move. However, if you're happy with that then this is an excellent app for collating your contacts into one area.

» like this? try this!

Contacts on Map This app takes just your phonebook contacts and pinpoints their home or work addresses on a map

» specification

Price **Free + IAPs**

Designed for Phone and tablet

Requires Android 4.1

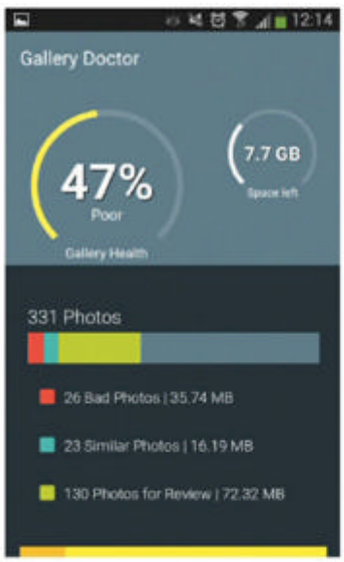
» verdict

Performance

Design

Value

A handy app for the connected generation but feels like snooping



Gallery Doctor diagnoses and treats your overworked gallery

Gallery Doctor

Clear your gallery of rubbish pictures

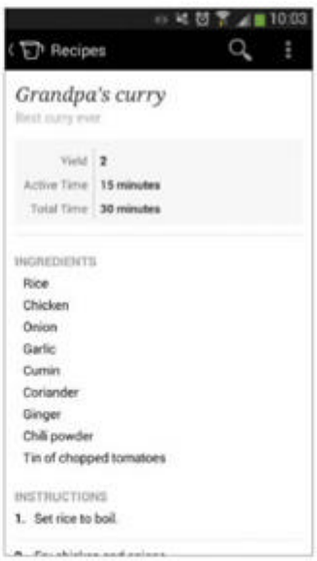
Most of us have photos in our gallery that are too dark or too blurry but sit there because we can't be bothered to sift through and delete them all. Gallery Doctor analyses your photos for you, sorting them into photos that are bad or similar. One tap shows all the photos the app thinks would be better off being deleted, such as out-of-focus shots or duplicates. A stack of pictures of review appears and a simple swipe chooses to keep or ditch a picture, which is easier than working your way through a gallery. It takes the time and effort out of scrolling through your images and the way it groups photos is useful as you may want to get rid of bad shots from one album but keep another intact. If you're a keen photographer, this could be a handy app as it would take the work out of streamlining your gallery while still giving you complete control.

» **Price** Free
» **Designed for** Phone and tablet
» **Requires Android** 2.3.3

» like this? try this! **PHOTO GALLERY** » Rather than delete your photos just sort and edit them using this simple but elegant app

quickhits

5 top apps for... Food lovers



Pepperplate Free

Create your own recipe book with this attractive app. You can group your meals making it easy to find a chicken recipe or spicy recipe, for example.

Hello Vino Free + IAPs

The world of wine can be a mind-boggling one, which is why Hello Vino is so useful. It recommends wine to pair with particular meals or to suit your personal taste.

Healthy Recipes Free

If you're still keeping up your New Year's resolution to eat more healthily, you might be running low on new recipes. There are more than half a million easy-to-follow recipes here.

Evernote Food Free

We liked Evernote already but this is an interesting direction for the memo app. Snap a picture of your dinner and share it with added notes about where you had it.

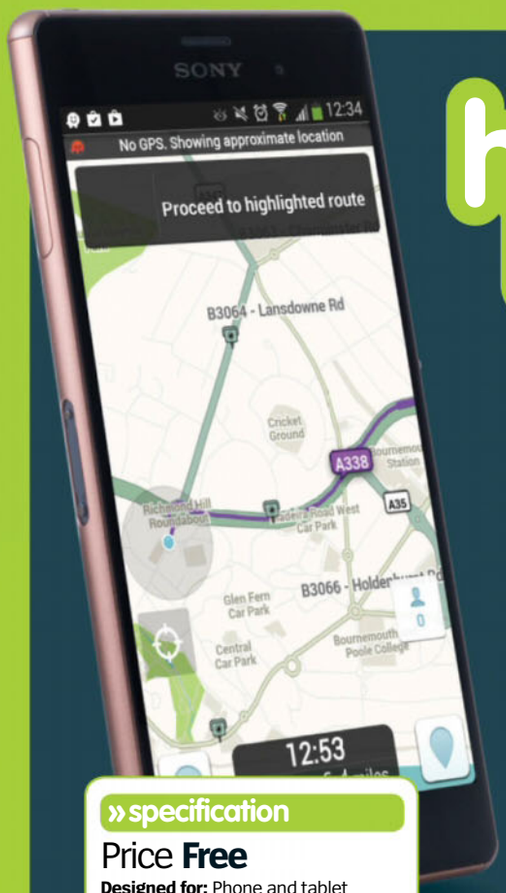
Simple Calorie Count Free

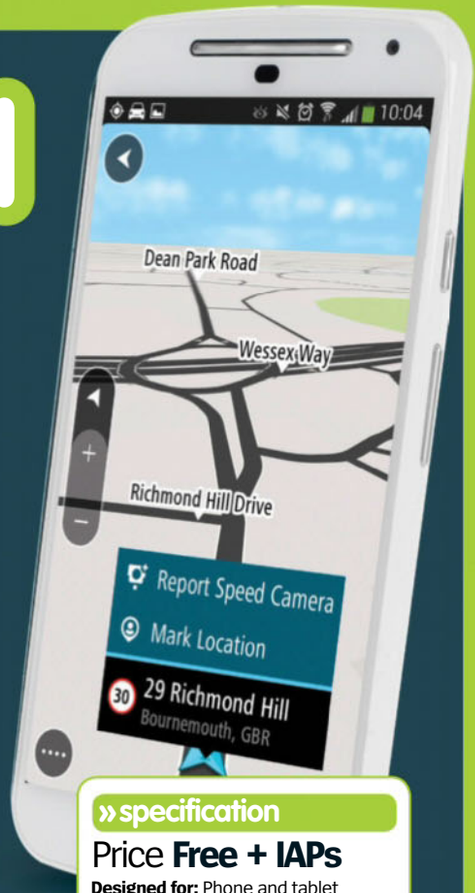
The weight loss aid without the hassle. If you want to keep track of your calorie intake, this has a simple input method and remembers your favourites for future reference which is handy.

head to head

Who will be the king of the mobile navigation? Meet the GPS big boys

WAZE GPS vs TOMTOM GO MOBILE





TomTom has updated its mobile app in a bid to compete with Waze, the current market leader in live traffic updates and navigation. Will these updates be enough to knock Waze off its perch?

»specification

Price **Free**

Designed for: Phone and tablet

Requires Android: Varies with device

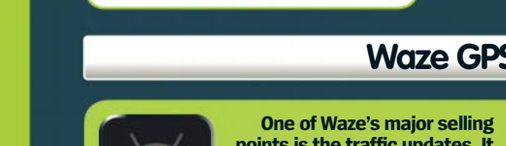
»specification

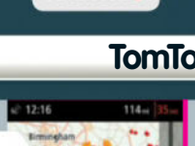
Price **Free + IAPs**

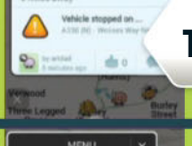
Designed for: Phone and tablet

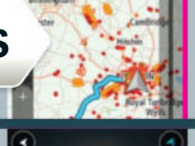
Requires Android: 1.6 and up

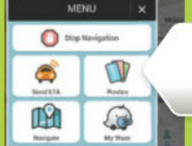
Waze GPS		TomTom GO Mobile
LOSE — One of Waze's major selling points is the traffic updates. It does rely on the community to update though, so you could get stuck if there has been no information added by others.	**TRAFFIC UPDATES**	TomTom has an enormous network providing real time traffic updates from all over the country. It might be a tad slower than Waze but it is more reliable. — WIN
WIN — Navigation around Waze is extremely easy as the menus are all very compact. The navigation settings are also simple to manage, which is handy when you're on the go.	**ACCESSIBILITY**	The menu is reduced to a triple dot in the corner of the app which helps when driving. However, the menu itself feels a little bit stale and quite dull to look at. — LOSE
LOSE — Waze has a very simple and uncluttered design, showing the route as simply as possible. You can also drop down to road level and see other Waze users.	**MAP LAYOUT**	The standard map on TomTom is simplistic, but dropping to ground level reveals route landmarks in 3D to give you helpful pointers, which is useful. — WIN
LOSE — If you are planning a route from your current location, Waze is superb, but it is a hassle trying to plan a route from somewhere other than your current location.	**ROUTE PLANNING**	Pre-loaded maps enables you to plan routes even when there is no signal, which is very handy for driving in rural areas. Route planning is simple too. — WIN
WIN — Features such as gesture and audio control are really handy for when you are on the move, and the option to send your favourite contacts an ETA is a great idea.	**ADDED FEATURES**	Speed camera warnings are now fairly standard and TomTom's store of addresses makes for easy quick searches. You can also plan a route from your contacts list. — LOSE

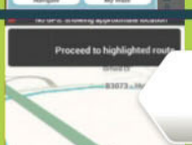


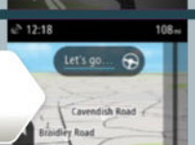


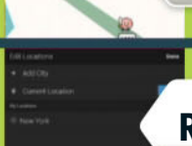


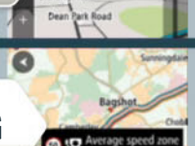












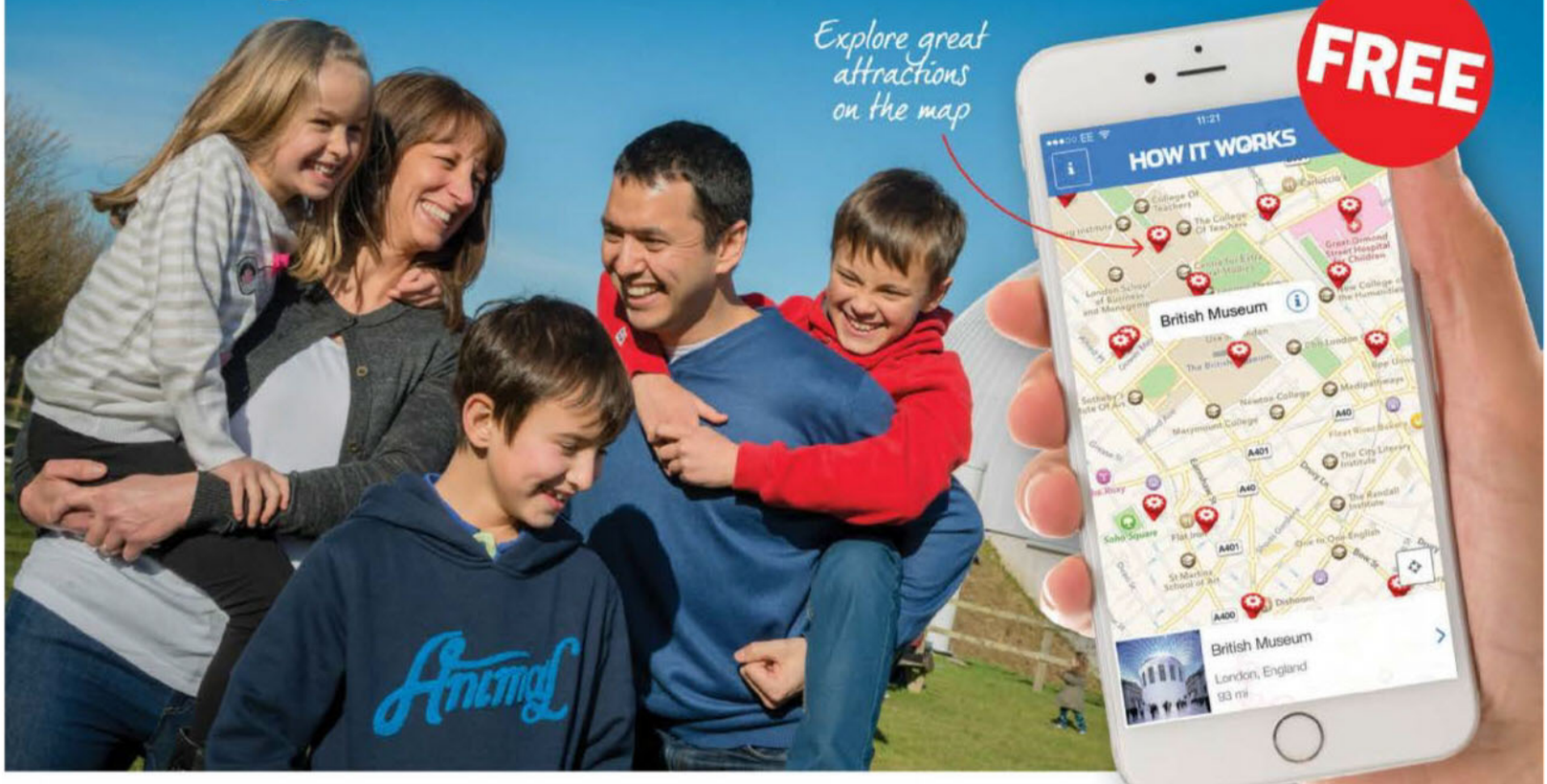
And the winner is...

TOMTOM GO MOBILE

Waze provides a much more personal service and it has some truly great and innovative features, but as the job of a navigation app is getting from A to B, the TomTom GO app has the edge. Internet-free maps are brilliant and the traffic updates are very reliable.

Plan your perfect day out

Inspire your family and go somewhere amazing this weekend. **GREAT DAYS OUT**, the new **FREE** iPhone app from **HOW IT WORKS**



NATIONAL PARKS

MUSEUMS

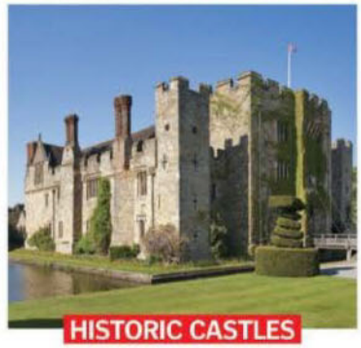
RAILWAYS

EXHIBITIONS & EVENTS

BEST BEACHES

ICONIC LANDMARKS

WILDLIFE PARKS


HISTORIC CASTLES

Search 'Great Days Out' in the App Store or visit **www.greatdaysoutapp.com**

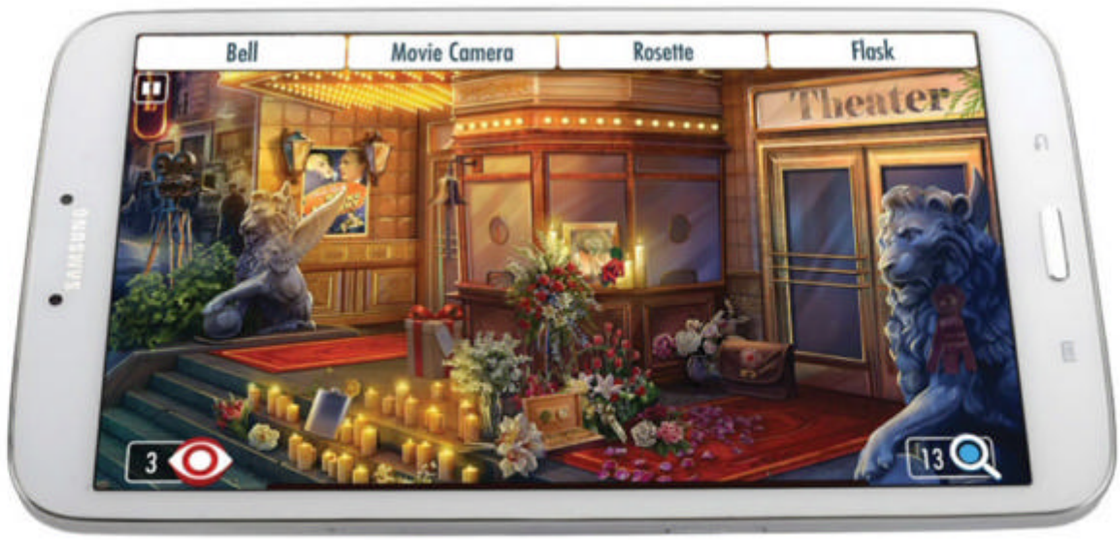
Download on the App Store

Agent Alice

Help solve a particularly thorny mystery

EDITOR'S CHOICE ★★★★★ Android magazine

Agent Alice rapidly became a gaming phenomenon with an astonishing three million downloads in the first four days. The game is centred around the titular Agent Alice, who's role it is to uncover the mystery of a kidnapped actress that quickly expands into a supernatural chase around the city. The story itself boils down to a succession of hidden object searches against the clock. Visually the game is excellent, with the hidden objects ranging from obvious to very well hidden indeed. The cut scenes don't drag on, a common theme among games like this, and are simply yet effectively illustrated. Wooga hasn't tried to do too much with the animation, focusing instead of making a series of good-looking stills. Each scene has up to three stars to earn through rapid finding, and we do like that returning to a scene results in new items each time, so a second search doesn't become a procession. Going back to each scene is essential as you quickly run out of gems, which you need to progress. You get around 30-45 minutes of gameplay before you've either got to wait an hour to progress or pay for extra gems. For a game as involved as this, that's not too bad but is still an annoying, yet necessary, evil of the free game. It's easy to pick up, with only around 30 seconds of tutorial time required before you're plunged right into the mystery. It would be nice if we were more involved in the story itself and had more options beyond being aggressive or diplomatic in questioning. There is the occasional mini-game thrown in to change things up, such as firing a gun with a tap or putting together a puzzle, so Wooga has tried to make this more than a standard hidden object game. This is a really enjoyable game, artistically superb, with a strong storyline and interesting and varied hidden object screens to explore.



Random objects hidden in tricky places

Negotiate the map to find the killer

Cutscenes are artfully illustrated

» **Price** Free + IAPs
» **Designed for** Phone and tablet
» **Requires Android** 4.0.3

what we've been playing

Cooking Fever **Free + IAPs**
A madcap game that sees you as the manager of a restaurant furiously flipping burgers and pouring drinks for impatient customers. Good fun, if a little frantic at times.

Hanging With Friends **Free + IAPs**
A true classic. Words With Friends is Hangman for your mobile. Send your opponents the hardest word you can think of and see if they guess it.

Recommend a game...
» twitter
@lgrobot

Dot Heroes

A swing and a miss

Many games have tried to recreate the knockout success of Flappy Bird and, so far, none have managed to recapture the magic. However, the makers of Dot Heroes: Woop Woop Ninja have had another stab at it, with the added twist of a combat element.

You play the part of a small, round ninja who leaps through gaps in a succession of columns via a series of screen taps. Very familiar, right? But after each round you are awarded a ninja throwing star for every column you've passed to use against a monsterous enemy. If you hit your target, you move onto the next level and a tougher enemy. The coins and berries you collect through the levels increase the power of your attacks to help you defeat each monster more efficiently. However, we would have liked to have been able to throw the stars ourselves, rather than have it automated for us.

Dot Heroes: Woop Woop Ninja is a nice concept, but it is a little too easy to rival the frustating fun of Flappy Bird. On the plus side, Dot Heroes is 100 per cent free, making a great game for younger players.

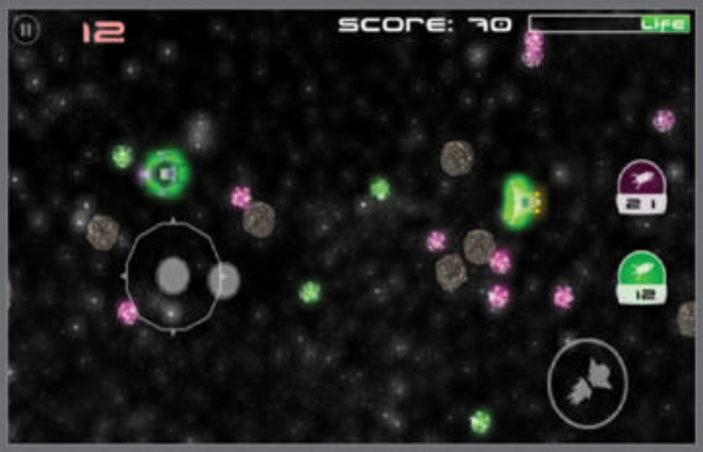
Dot Heroes offers Flappy Bird-style fun

» **Price** Free
» **Designed for** Phone and tablet
» **Requires Android** 2.3

Stars Wagon

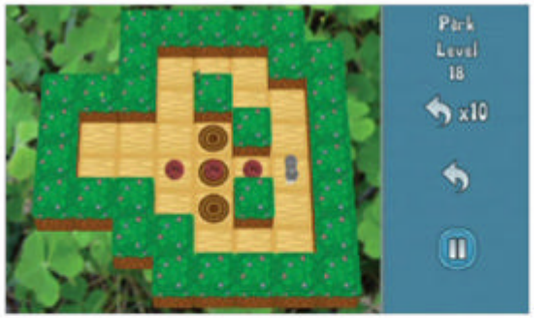
Stars Wagon into the darkness

Not so long ago in a (Samsung) galaxy far, far away, a space-based shooter was born. Stars Wagon is a side-scrolling game that sees you battle light-eating 'Dark Ones' to save the universe. Your left thumb controls a joystick while your right changes the colour of your craft and fires the weapons. Little blobs of light head towards you, so you have to make sure your craft's colour matches the light blob. Hazards in the form of asteroids and enemy crafts come at you from the left, which can be a problem when your thumb masks the enemy. The levels raise in difficulty as the number of asteroids and the size and power of enemy crafts increase. One frustrating thing is how difficult it is to die. Even when pounded by asteroids and light pulses, we rarely failed a level. The story was good and it's visually nice, but it's not a game you'll play a lot.



Avoid the asteroids, collect the correct coloured energy and destroy the enemy

» **Price** Free + IAPs
» **Designed for** Phone and tablet
» **Requires Android** 3.0



Can you solve this puzzle? No seriously, can you? We're totally stuck

EP Sokoban Catzzles

Logic games to give you paws for thought

Catzzles does exactly what its name suggests. You control a cat around a series of logic puzzles, trying to push balls of yarn onto a target. It may sound simple, but it gets tough after a few levels and will soon have you furiously backtracking as you repeatedly run down blind alleys. The game itself is fairly limited in terms of gameplay variety and graphics, but it is charming and simple to grasp, even if the puzzles do get difficult. There are 1,000 puzzles to get through and we like the fact that you can skip a level. The star rating for reaching your goal in the target number of moves keeps you striving for perfection. This is a game that you can play with enjoyment and frustration.

» **Price** Free + IAPs
» **Designed for** Phone and tablet
» **Requires Android** 2.3

Prize Claw 2

Grab yourself a free Android game

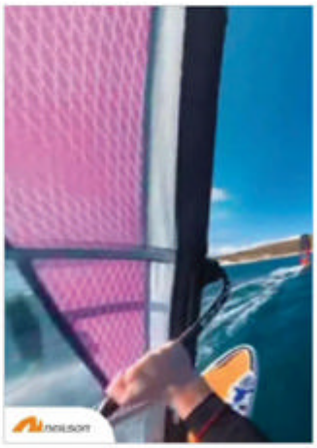
Those tempting claw machines in arcades lure you in with prizes that just slip out of the claw's grasp. Prize Claw 2 isn't quite like that, rewarding you with a prize more often than not. Longevity in this game is provided by the targets, such as getting four cats, ten capsules or reaching the next XP level. The problem with the former is that most of the creatures are indistinguishable from the rest, with dogs looking a lot like birds. There are some quite fun functions, such as the magnetised capsule that lets you pick up several items at a time, speeding you through your challenges. Each grab costs five coins and they get used up quickly, forcing you to buy more or wait till the next day before you can continue. Prize Claw 2 is a decent time waster.

» **Price** Free + IAPs
» **Designed for** Phone and tablet
» **Requires Android** 2.3

How can you not want to grab one and drop it in a bin?

quickhits

Super simulators



Neilson 360 Free

If you've wondered what it's like to go windsurfing, this cool app gives you that experience as you find yourself on a speeding surfboard. Fun for a couple of minutes.

Chopper Lander

£0.77/$0.99

Chopper Lander is the Frogger and Crossy Road of the skies. Pilot your helicopter to the ground through rows of planes and clouds. Good fun but it needs better controls.

Turbo Dismount

Free + IAPs

This is a bit of a weird one, but pretty good fun. Drive your vehicle up to an obstacle and gain points depending on how spectacularly you crash.

Truck Simulator 3D

Free + IAPs

Take a truck and its cargo across the USA, dropping it off and taking on new jobs. Well made and can get into it straight away, but gets dark too quickly.

Flight simulator: Fly Plane 3D

Free + IAPS

Build up your piloting skills in this 3D flight simulator. Everything is at a slow pace so you get to grips with the controls.

Train Simulator 3D

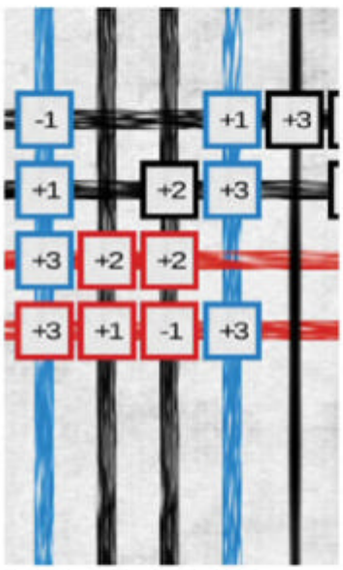
Free + IAPs

Become the world's greatest train driver in charge of the world's greatest steam trains. Not as much variety as most simulators but still a decent play.

Game of Strings

Walk a tightrope of point scoring and losing

Game of Strings treads the line between Chess and Squares. The app creates a network of strings going either horizontally or vertically, and places values at certain points. Clicking on a string gains you all those points, but if your opponent clicks one that crosses that, they can steal points from it. This makes for a fascinating game of cat and mouse as you gain and steal points from an AI opponent or up to four human players. This isn't just a game of point building as you need to decide when to steal and when to safeguard your own points. Visually, the game is extremely simple but very easy to pick up, and the different difficulty modes mean that you shouldn't get bored too rapidly. Each game is different so you constantly need to re-evaluate where the best starting point is, unlike in Noughts and Crosses where there is often a stock pattern at the start of each game. This is a fun, engaging and mentally-taxing game, whether you're playing the AI or a human.



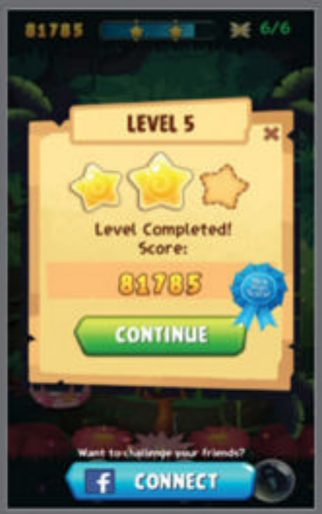
The battle to claim the valuable +3 squares hots up quickly

» **Price** Free
» **Designed for** Phone and tablet
» **Requires Android** 2.3

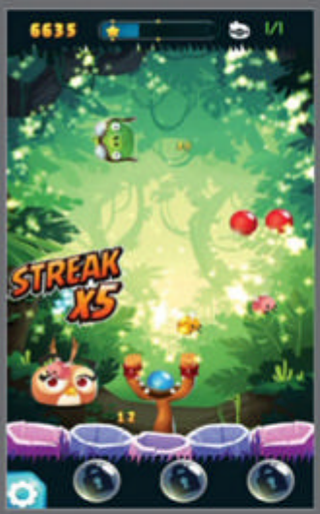
Angry Birds Stella Pop

Birds versus pigs joins the bubble pop world

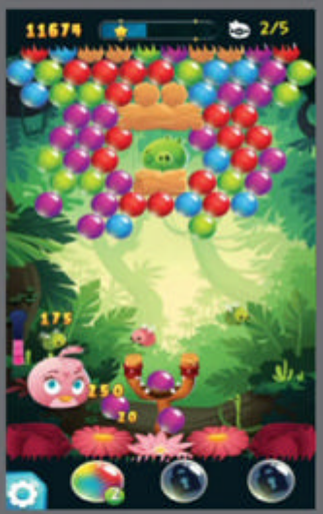
Angry Birds is one of the best selling mobile games ever and has spawned a huge variety of games, cartoons and there's even a film in the works. The only surprise in Rovio making the step into the incredibly popular bubble pop puzzle world is that it has taken so long. It has been six years since the game first launched onto mobiles and the angry avians and bad piggies still haven't managed to settle their differences. Now, however, instead of flinging themselves at the cocooned green piggies, the birds are weaponising bubbles – connect three similarly coloured bubbles to defeat the hogs. The game itself plays just like pretty much any other bubble pop game, firing the missiles from a slingshot which can bounce off walls to attach to their brethren. Levels vary in objective but all have the ultimate goal of pure bubble popping. It takes around 45 minutes to get to the point where you need to start waiting or spending cash to advance, as some levels seem nigh on impossible to get through without buying a few extra bubbles. Visually it is engaging, very much in the artistic style of previous Angry Birds games, so you know what you're going to get looks-wise. There are 75



Stella Pop uses the star system familiar to Angry Birds fans



Score streaks boost scores and improve your chance of sending the piggies flying



Match colours and burst bubbles to defeat the bad piggies

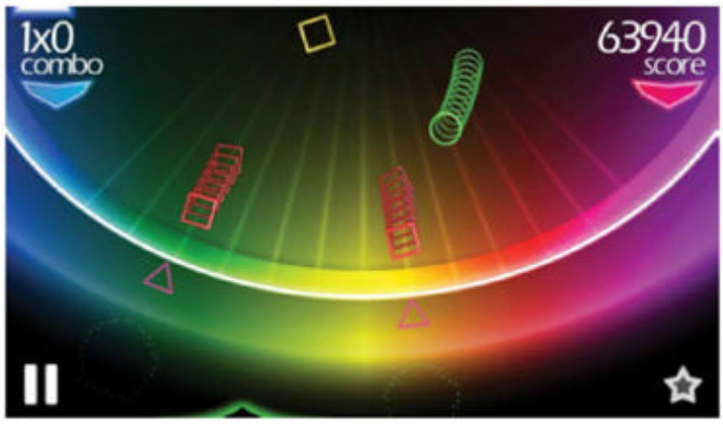
SongArc

Guitar Hero – without the guitar

Most of us will have played from the Hero console gaming series, whether it's Guitar Hero, Band Hero, DJ Hero or any of the other many options now available. SongArc is similar in that you need to tap the screen as the musical notes hit the arc, earning points for accuracy and by getting good combos. The notes move around a lot so you aren't stuck in just one area, tapping away mindlessly and, although this makes the game much tougher, it also makes it a lot more engaging. There are a decent variety of pre-loaded songs on the app but there is also the capability to use songs from your own playlist and even compose your own song sheet. This is a fun, vibrant musical game, which we really enjoyed playing.

» **Price** Free + IAPs
» **Designed for** Phone and tablet
» **Requires Android** 4.1

Are your fingers quick enough to capture every single note?



levels for you to negotiate before you reach Stella's eternal enemy, Bad Princess Gale. The game plays very well and we especially like the Against The Clock rounds, but there is very little to differentiate it from other bubble shooter games. However, being an Angry Birds game, it is almost certainly going to gain a ridiculous number of downloads and, for a free game that is entertaining, well made and gives you a decent amount of gameplay and free lives before slowing down, those downloads will be well deserved.

Where will Stella send that yellow bubble?

»like this? try this!

Shoot Bubble Deluxe One of the original bubble shooting games, where you draw lines from your finger to the target

»specification

Price **Free + IAPs**

Designed for Phone and tablet

Requires Android 4.0

»verdict

Performance

Design

Value

Fun bubble shooter but not much innovation from what we have seen before

Enemies can come out of the shadows to surprise and attack you

Outwitters

Defeat your enemies in a sneaky, turn-based battle

EDITOR'S CHOICE Android

Outwitters is a popular iOS game that has leapt onto Android. You control an army of strange looking creatures who have a variety of abilities, such as powerful attacks, ranged attacks, or healing. Manoeuvre your troops around the battlefield to protect your castle and attack your enemies. There's just one drawback – you can't see where they are until they're within range. This is a neat twist on the nature of turn based battles because you can't prepare your army for battle as you don't know what you'll be facing. This can lead to a rank imbalance on one side, making the following battles fascinating. The characters are unique and you can play without spending a penny. Upgrading will let you play more games at once, but it's unnecessary. This is a super strategy game and the presence of a worldwide leaderboard will keep you playing.

»**Price** Free + IAPs
»**Designed for** Phone and tablet
»**Requires Android** 4.1

»like this? try this! **CLASH OF CLANS** »If you're a fan of leading armies into battle, you can't really go wrong with this epic clan-building game

quickhits

5 top apps for... Racing games

Daytona Rush Free
This is a mix between a racing career game and an endless runner. Drive your car around the Daytona circuit until you crash, earning points for completing challenges. Very basic.

Trial Xtreme 4
Free + IAPs
Take the motocross challenge in this career game. It can be incredibly frustrating at times when you keep on dying time after time, but it is definitly a good challenge.

Real Drift Car Racing Free
Does exactly what it says on the tin. Drift around some cool looking locations gaining points and money for race wins and awesome drifts to upgrade your car.

Taxi Driver Mania 3D Free + IAPs
Drive your taxi around the city picking up fares and earning cash toward a better car. There are far too many people running off in this low budget GTA copycat though.

Rally Racer 3D
Free
Just the worst racing game we've ever played. No touch, no feel and we had more control driving in reverse, which we found happened pretty regularly which is not ideal.

Android magazine

BUYER'S GUIDE

Discover the best smartphones, tablets and accessories to buy in our top ten charts

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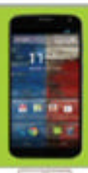
TOP 10 SUPER SMARTPHONES

THE BEST FLAGSHIP AND MID-RANGE ANDROID PHONES ON THE MARKET

1		**Moto X (2014)** While the previous Moto X was something of a flagship underdog, the second-gen model is bigger and better. Its 1080p screen, 13MP and the Snapdragon 801 quad-core processor still offer competitive specs, despite the handset being launched late last year. The Moto X (2014) also offers a near stock Android experience with 15-minute Turbo charging, but is much cheaper than the Nexus 6, which offers the same features. Its biggest problem is a lack of microSD support.	£439.99 See issue 45	
2		**Sony Xperia Z3** While it is only a minor upgrade on the Z2, the Xperia Z3 is still a very impressive handset. Artfully crafted from glass and metal, the Z3 is not just stylish, but also 100 per cent waterproof. Its 20.7MP camera is one of the best we've seen and the PlayStation Remote Play feature will appeal to gamers.	£499.99 See issue 44	
3		**LG G3** Though its expected to soon be replaced by the G4, the LG G3 continues to impress us with its pin-sharp QHD 5.5-inch screen, laser-focused 13MP camera and lightning-fast processor. However, its faux metal plastic casing is disappointing, as is its mono speaker.	£439.99 See issue 41	
4		**HTC ONE M9** We marked the M9 down for only being an incremental update on the M8, but it is undeniably a superb phone. Underneath its elegant silver and gold chrome shell, it houses a superfast Snapdragon 810 processor, 20MP camera, 3GB RAM, 32GB memory and some clever customisation tools.	£579.99 See issue 50	NEW ENTRY
5		**HTC ONE (M8)** While the M9 has bumped the M8 down a peg in our chart, it remains a fantastic phone. An all-aluminium design, with a bright 1080p screen and powerful dual speakers. Not only will its price slash with the launch of the M9, it can be upgraded to Android Lollipop as well.	£549.99 See issue 37	GOING DOWN
6		**Samsung Galaxy Note 4** To look at, the Note 4 is a modest update on the Note 3, with a same-size display and continued emphasis on using the S Pen stylus. However, it has been revamped in almost every area. The TouchWiz interface handles better than ever, it has a 16MP camera and has an extra-long battery life.	£549.00 See issue 45	
7		**Nexus 6** Google's first phablet, the Nexus 6 is larger than either a Galaxy Note 4 or OnePlus One. This can make it an awkward fit for one-handed use, but the gigantic 5.9-inch QHD display looks fantastic. It also has a super-fast processor and 3GB RAM for zippy use, along with a commendable 13MP camera.	£499.99 See issue 47	
8		**ZTE Blade S6** The best ZTE Blade in years, it runs Android Lollipop, has a 64-bit Snapdragon processor, 2GB RAM and the exact same IMX214 camera as the Sony Xperia Z3 – which costs around the three times as much. It's overall iPhone-inspired design is disappointing, but at 7.7mm it is surprisingly thin.	£169.99 See issue 50	NEW ENTRY
9		**Honor 6** This 5-inch phablet is Huawei's attempt to win over the Western market. While the imitation iPhone design and skinned Android KitKat interface are a bit generic, it is positively packed with features, including an incredible octa-core processor, 1080p display and long-lasting 3,100mAh battery.	£249.52 See issue 47	NEW ENTRY
10		**Xiaomi Mi4** While OnePlus is the bigger name in Chinese exports, Xiaomi is selling millions of units in its home country. The Mi4 manages to undercut the OnePlus One on price while maintaining impressive build quality. Like OnePlus, Xiaomi uses a non-standard OS but it's equal to KitKat 4.4.	£264.95 See issue 44	

In case you missed it... Selfie essentials **Read more in issue 48**

Selfy camera shutter case

» **Price** £29.99/$39.99
» **Website** iluv.com

This Galaxy S5 case includes a removable remote control that can activate your camera shutter for improved selfies. Unfortunately, it does add quite a bulky look when it's on your handset.

Olloclip 4-in-1 photo lens

» **Price** £59.99/$69.99
» **Website** olloclip.com

Clipping onto the top of your phone camera, you can use the Olloclip to switch lenses to add effects to your photos. This includes a fish-eye and a wide-angle lens that magnifies the image up to 10x and 15x.

Selfie Pods selfie stick

» **Price** £29.99/$TBC
» **Website** selfiepods.co.uk

Part selfie stick, part tripod, the stick extends to one metre for better self-portraits. The retractable tripod is handy for photo shoots and also watching videos hands-free.

Eye-Fi Mobi SD card

WINNER

» **Price** £33.33/$49.99
» **Website** www.eyefi.com

Not so much a phone accessory, as one for your camera, plug this SD card into your old digital camera to give it its on Wi-Fi field. Then you can access your camera's photos easily on your phone and upload them online.

Buyer's Guide

TOP 10 BUDGET BUYS

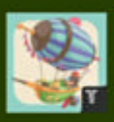
IF YOU'RE SHOPPING FOR A SMARTPHONE ON A SHOESTRING, CHECK OUT THESE LOW-COST MOBILE MUST-HAVES

1		**Moto G 4G (2014)** The Moto X's budget cousin set new standards for the low-cost phone with support for 4G. While it's made of a cheap plastic, the Moto G has not compromised on screen quality, which is 4.5 inches of sturdy Gorilla Glass 3 and offers 1280x720 pixels. The small memory can be boosted thanks to a microSD slot. Running near-stock Android, Motorola has confirmed Moto G 4G's next upgrade will be Lollipop, ensuring future-proofing for some time despite the launch of a new Moto G (2014) model.	From £139.99 See issue 42	
2		**Moto G (2014)** While the second-gen Moto X has won us over, the Moto G (2014) has fallen short of the top due to a lack of 4G despite the similar price point. However, this is a trade-off if you would rather have the slightly larger 5-inch screen or the useful addition of a dual SIM.	£155 See issue 44	
3		**Moto E (2014)** Available for under £100, SIM-free and no contract, the Moto E is the ultimate no-strings-attached smartphone. With a sturdy, splashproof case, 1980mAh battery that will go the distance and microSD slot to expand the tiny 1GB memory, the Moto E is an impressive build that won't break the bank.	£94 See issue 40	
4		**Asus ZenFone 5** While it is the most expensive phone in our budget buys chart, the ZenFone 5 offers an awful lot for less than most mid-range phones. A stylish metal design is available in a range of colours, it has a sharp 5-inch screen, powerful Intel Atom processor 8MP camera with a range of shooting modes.	£180 See issue 48	NEW ENTRY
5		**EE Kestrel** Only available from the EE network, its own-brand Kestrel phone is offering 4G data speeds at a very reasonable price. Produced by Huawei, the handset has a curved design which gives it a unique flair. Good battery life ensures it can handle its quad-core engine and 4G's inevitable drain.	£99.99 See issue 40	
6		**Honor 3C** The low-end alternative to the Honor 6, this frugal 5-inch phablet is a bit behind the times running Android Jellybean and only offering 3G signal. However, a 2MP front-facing selfie camera, generous 2GB RAM, expandable memory and dual SIM support help to make up this. Great for first time users.	£109.99 See issue 49	NEW ENTRY
7		**HTC Desire 510** At 4.7 inches, with a budget price tag and LTE connectivity, this is HTC's answer to the Moto G 4G. However, cost-saving measures such as a 5MP camera and poor screen quality mean it just can't compete. HTC's Sense 6 UI is still here though, offering one of the best custom interfaces for Android.	£119 See issue 44	
8		**Samsung Galaxy Ace 3** While Samsung's high-end handsets get a lot of attention, the company has a much broader range. The Galaxy Ace 3 is now on its third incarnation and at £81 it sits neatly in the budget to mid-range category. This is a 4G handset with a distinctive Samsung look and features.	£120 See issue 34	GOING DOWN
9		**Acer Liquid Z5** A good-looking phone with tapered edges, the Acer Liquid Z5 offers a stylish alternative to most black brick handsets. Its innovative Float Apps interface also makes it easy to multitask apps. However, humdrum specs, like a low-res screen, leave it ranking low in the competitive world of budget phones.	£95 See issue 39	GOING DOWN
10		**Alcatel OneTouch Idol Mini** The understated style and low-end specs make the Alcatel OneTouch Idol Mini a great option for first-time or light users. SwiftKey as the default keyboard is a welcome addition. However, it's hard to justify the excessive bloatware on a phone that only has 4GB storage.	£79.99 See issue 39	GOING DOWN

In case you missed it... Match three puzzles **Read more in issue 48**

Airship Bakery

» **Price** Free + IAPs



Airship Bakery offers a fun twist on the usual match three recipe, with players matching desserts to serve delicious treats to customers. Unfortunately, the levels are little too easy. Not being restricted to a move in just one direction made it too simple.

Puzzle Pets

» **Price** Free + IAPs

Definitely one for the kids, this cutesy game gets you to match adorable critters while exploring islands. Less child-friendly are the in-app purchases that can reach £39.99. Still, IAPs are not mandatory and levels are vibrant and challenging.

Mystery Match

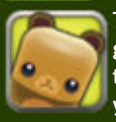
» **Price** Free + IAPs

Match jewels to uncover clues in this unique detective mystery. Given the relatively simplistic gameplay, Mystery Match is surprisingly plot-driven and is packed with a range of interesting characters.

Triple Town

WINNER

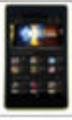
» **Price** Free + IAPs



The match three genre meets town-building sim as you combine trees to create huts, huts into houses, and houses into mansions. However, bears and a limited number of turns will force you to rethink how your city expands.

TOP 10 BEST TABLETS

WHETHER YOU'RE LOOKING FOR A SEVEN OR TEN-INCH DISPLAY, THESE ARE THE TOP TABLETS AVAILABLE ON ANDROID

1		**Sony Xperia Z3 Tablet Compact** With its 8-inch screen and premium price tag, Sony is pitching the Z3 squarely against the iPad Mini in a bid to compete with its rivals. Weighing just 270g, it is slim and slender with a stylish minimalist design that belies the blazing processor and 3GB RAM under the hood. Its Triluminos display can give Samsung's Super AMOLED screens a run for their money and works fantastically with Sony's PS4 Remote Play feature so you can enjoy console-quality games on the go.	From £284 See issue 46	
2		**Google Nexus 9** A mighty Nvidia Tegra K1 processor and 3GB RAM mean that even running the most graphic-heavy games won't slow this 64-bit tablet down. The built-in BoomSound speakers also offer great sound quality, making Google's new tablet an all-round media consumption device.	From £319 See issue 45	
3		**Samsung Galaxy S Tab 10.5** Ultra thin and ultra bright, colours look vibrant and details distinct on this powerful Super AMOLED screen. Samsung's iPad slayer also puts many other Android tablets to shame, with a multi-window mode to display several apps at once and octo-core processor ensuring lightning-fast performance.	£399 See issue 43	
4		**Sony Xperia Z2 Tablet** Arguably one of the most portable 10-inch tablets available, the Xperia Z2 Tablet is waterproof and can support a SIM card for 4G use. It is also surprisingly thin and light to carry, and includes power-saving modes to ensure longer battery life. Reasonably high-spec, it has a whopping 3GB RAM.	£399.60 See issue 39	
5		**Google Nexus 7 (2013)** Recently superseded by the Nexus 9, the Nexus 7 still offers a stock Android alternative for the mini tablet market, with the added benefit of running the latest Android OS and being first in line for upgrades. The downsides are its last-gen specs and lack of a microSD slot.	£199 See issue 29	
6		**Tesco Hudl 2** This sequel to the supermarket chain's own-brand tablet can't compete with premium models, but sets a new benchmark for budget tablets. Upping the display size from 7 to 8.3-inches, the Hudl 2 also runs Android 4.4.2 KitKat and can handle anything you throw at it thanks to an Intel Atom processor.	£129 See issue 44	GOING UP
7		**LG G Pad 8.3** A well-rounded tablet, the LG G Pad 8.3 offers solid specs with a selection of impressive built-in apps. These include Polaris Office so you can write documents on the go, and QPair, which shares your smartphone notifications to your tablet so you never miss important updates.	£199 See issue 40	GOING UP
8		**Samsung Galaxy TabPRO 8.4 Wi-Fi** The smallest tablet in Samsung's collection, the TabPRO 8.4 proves that good things do come in small packages. A stunning 359ppi screen puts the Nexus 7 to shame, though we'd prefer higher-quality speakers. However, an 8MP camera and intuitive interface are good compensation.	£199 See issue 38	GOING UP
9		**Alcatel OneTouch Pixi 7** This 7-inch tablet can't be faulted for its price, which is one of the most affordable on the market. It runs Android KitKat 4.4, offers 1080p video playback and has a triple-core processor. It's also incredibly lightweight for added portability, but lacks memory with only 4GB RAM.	£64.99 See issue 48	NEW ENTRY
10		**Amazon Fire HD6** Despite only having a 6-inch display and a budget price tag, the Fire HD6 is a decent tablet for watching movies and listening to music. However, the inferior forked OS and lack of third-party app support make the Fire HD6 hard to recommended for regular let alone heavy-duty use.	£79 See issue 46	

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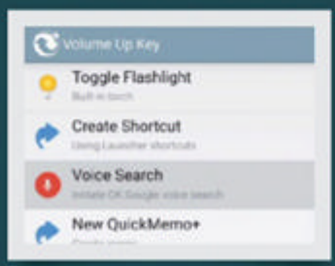
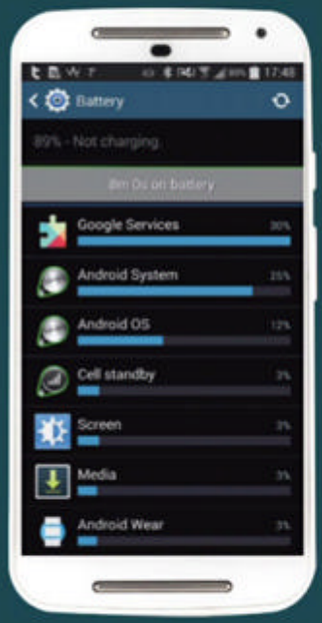


Did you know?

You can greatly increase the flexibility of your LG G3 or G2 by installing Key Plus for LG from Google Play. It lets you launch customisable apps by holding the volume up or down button when the screen is locked. You can choose almost any shortcut you like.



With bigger batteries comes the need for more powerful charging

My phone takes forever to charge!

"My Galaxy Note 3 is taking a long time to charge. I use it in the car and keep it plugged in, and also make sure it is attached to my laptop at work, so it should always be at 100%. What's going wrong?"

Tariq Jeffery

Hi Tariq. This is a common problem and one that has not been obviously addressed by many phone manufacturers. It sounds as though you are trying to charge your Note through the USB port on your laptop and also the cigarette lighter charger in your car, both of which will not offer the same amount of power as a direct connection to an AC socket. If you can, you should try to always charge from a power outlet and ideally with the official USB cable that Samsung includes in the box. You can also try charging with the phone in Airplane mode if this is convenient, because this can decrease the charging time substantially. Now, we do advise to use the official cable where possible, but if you can test it with another cable from a Motorola or HTC device, you may find that these work better. Improvements in charging with these cables have been reported, as has using an iPad USB charging accessory which is designed to push more continuous power to the battery. There are even helpful modifications that you can make to a charging cable if you have the technical expertise, but one of the simpler solutions above should work for you. Devices like the Galaxy Note offer superb battery performance, but the battery has to be big to do that and so you can naturally expect to need to push more power to it for it to charge in a more acceptable time period.

Charging your phone via a laptop is not as effective as charging directly from a socket

Ask your questions

Got a problem with your Android phone or tablet? Send it to us and we'll find the solution

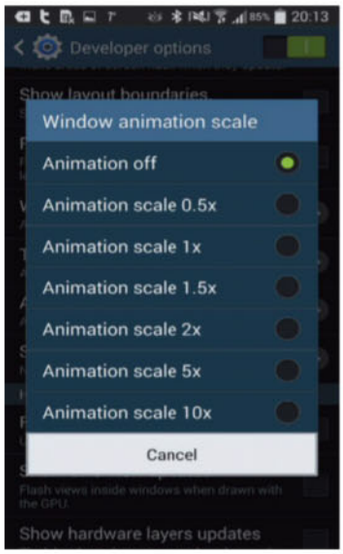
»facebook /littlegreenrobot
Get help from our Facebook community

»email qa@littlegreenrobot.co.uk
Send your questions for our team of experts to tackle

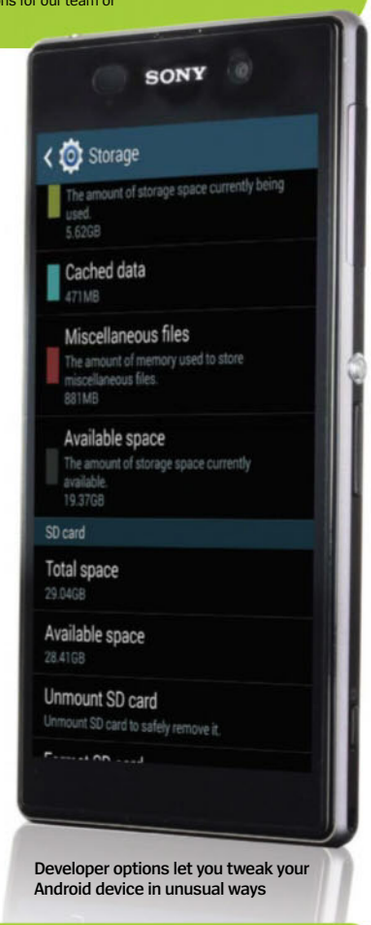
Why doesn't my phone like waking up?

"Do you know why my Galaxy phone takes a long time to wake up when I receive a text or an alarm goes off? It was fine when I first bought it, but it has gradually got slower over time and now takes up to 10 seconds to wake up." ***Beverly Joyce***

A **Hi Beverly.** In theory there's no reason why your Galaxy should be so slow to start but we have some potential solutions for you to try. Besides the obvious checks such as making sure you have some spare system memory and that you are not overloading your devices with apps and games, you can make some small changes to see which one solves the problem once and for all. We would suggest going to Settings>About device and then tapping the Build number multiple times until Developer options is activated. Now look for 'Window animation scale' and turn it off. Animations are known to sometimes cause problems when devices wake up. Next you should try removing an expansion card if one is present. If you are using a particularly slow card or one that is faulty, this alone could cause major slowdowns when trying to wake your phone. If this helps, you may need to replace the card with the best you can afford, but we would suggest at least a speed rating of 10. Finally, if you have a password set up or any other kind of security to open the device, try disabling them to see if this helps. Sometimes you need a little bit of trial and error to find the exact cause of a problem, but we are sure that one of the above should resolve everything for you.



Animations can easily be turned off in Developer Options

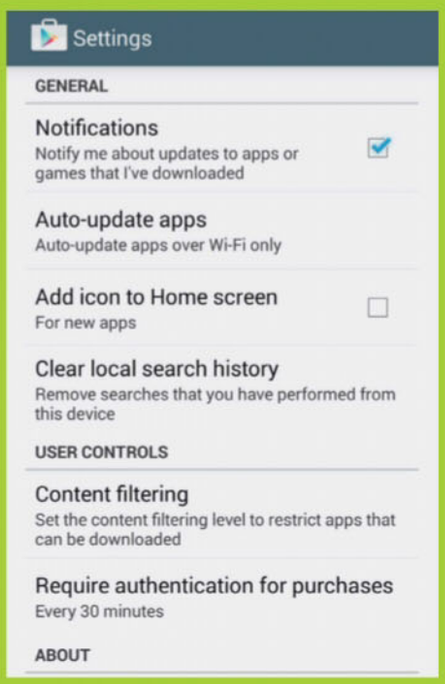


Developer options let you tweak your Android device in unusual ways

hints & tips Get more from your Android phone with our handy hints

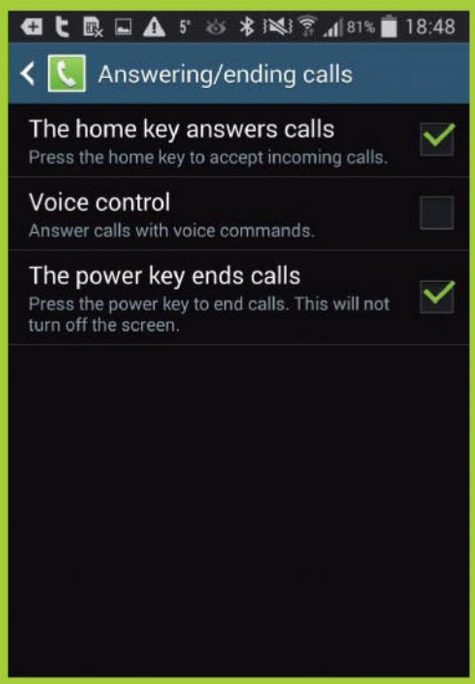
Stop app icons appearing

1 The default setting is for newly installed apps to populate the homescreen immediately, but you can turn this off by going to Google Play settings and unticking 'Add icon to Home screen'.



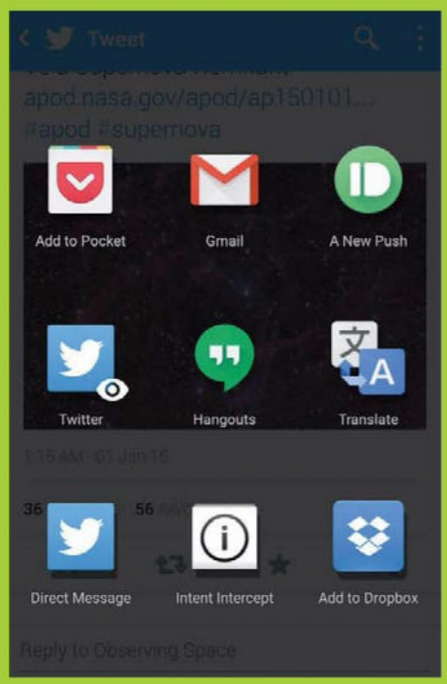
Answer calls with buttons

2 In Settings>Accessibility you can change options on some phones in the 'Answering/ending calls' section. The home button can be used to answer calls and the power button to end them.



Improve Android sharing

3 Sharing in Android is comprehensive, but the process can become unwieldy over time. Fliktu, from Google Play, gives you control over the organisation of your default sharing apps and also works more visually.



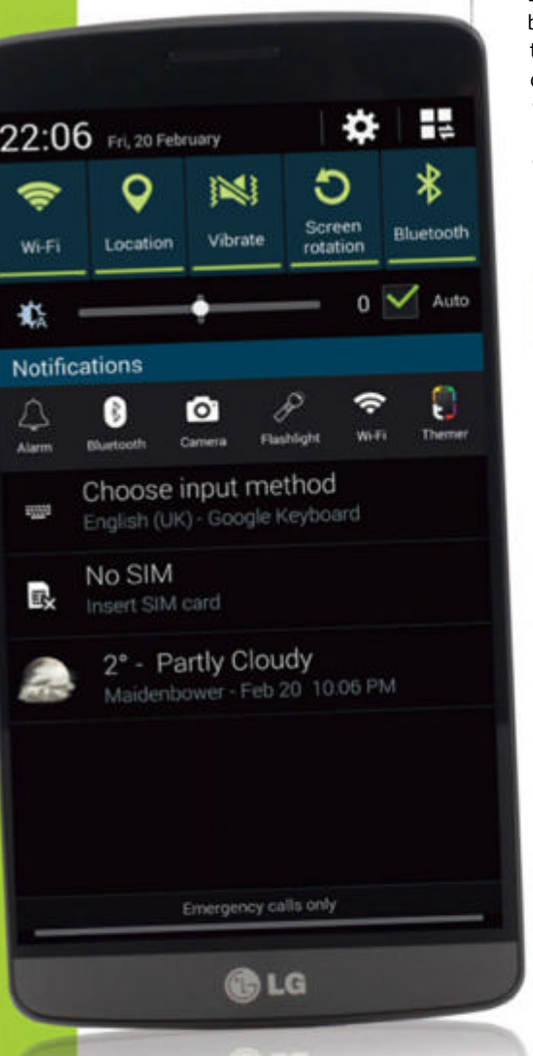
Did you know?

If you spend a lot of time working near a PC with your Android device and need to share text between the two quickly, then Alt-C from Google Play, will be a handy solution for you. You can copy text from the PC to your Android device's clipboard in an instant!

Help me change my keyboard

I've installed the Google Keyboard on my phone and it's a real pain to swap between the default one and this. Each performs better in specific apps and I hate going to the settings each time. Is there an app out there that can help me?
Mick O'Brien

A **Hi Mick.** You don't need an app to help you because Android offers the exact tool you need by default. When you are in an app and activate the keyboard, you should see a small keyboard icon appear in the status bar at the top. Pull down the bar and then tap 'Choose input method', at which point you can select any keyboard that you have installed and also the default one. Your keyboard of choice will always appear when you enter a part of an app that needs it, such as sending an email, but at least this way you can quickly jump to another keyboard if you so wish. It is one of many features in Android that is not easy to spot until you see it, but it is extremely useful.

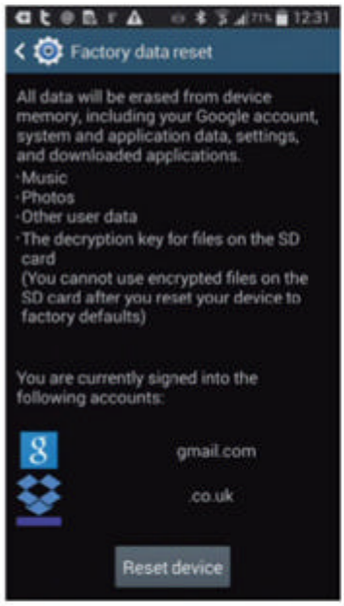


You can change your keyboard instantly

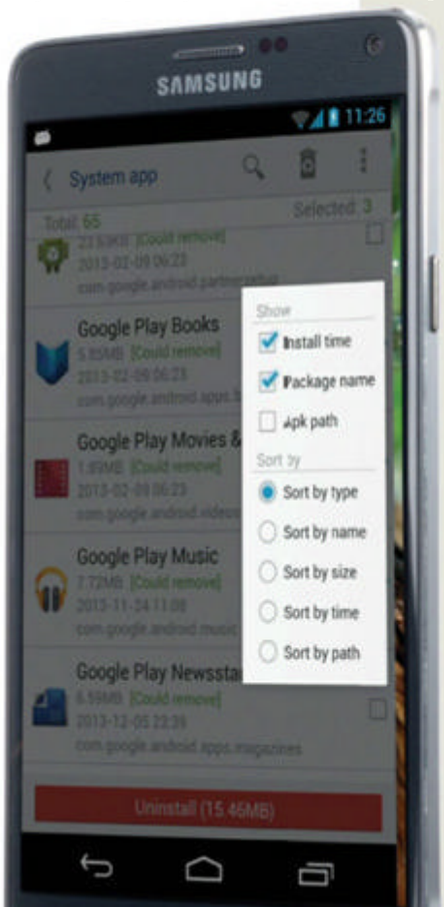
Lollipop is slow and power hungry

I updated my phone to Android Lollipop and I wish I hadn't bothered. It is now very slow and the battery life is appalling. How can I go back to the previous version or is there a way to improve the situation? I like the visuals, but the performance is simply terrible!
Brian Hall

A **Hi Brian.** Your situation is not unusual and it is one that has been apparent on a few different devices. We can't be too specific without knowing your exact phone, but there are some general things you can do which may get your phone back to the performance you have been used to in the past. It may sound extreme, but a full factory reset will offer an immediate improvement, which has been evidenced by other people who have tried it. You could in fact just clear the system cache which requires a few steps, but which will n require so much manu re-installing afterwards. Search for the process for your phone and see if either helps. While it is technically possible to revert back from Android Lollipop, the process is very complex and is likely to lead to other problems in the future. Remember that Lollipop is a major update and that Google will inevitably work on fixes in short order so we can hopefully expect that isolated performance problems will only be temporary.



Lollipop is a major update so you may need to do a full reset



I want a smooth Android phone

A I recently moved to Android from an iPhone and am loving the extra flexibility. However, I'm finding that the system sometimes lags and this is particularly apparent when browsing the web or reading eBooks. I would love to have that same smooth experience I enjoyed with the iPhone to complement my newly found freedom. Any ideas as to how I can lose the jagged scrolling at the very least?
Calvin Hepburn

Hi Calvin. It has always been true that iPhones and by extension, the iOS operation system, have been buttery smooth, but in recent times Android has been updated to run at the same frames per second speed to offer similar performance. You will likely find that the smoothness is there 98 per cent of the time and that certain apps or processes expose a lag on occasion, but there are things you can do to stop this from happening. We would advise, if you are happy to do so, to root your device so that you can get under the hood of your phone and there are many articles that touch on the process at **www.littlegreenrobot.co.uk**. Once you have done this you can follow the steps that we have provided which will hopefully offer an almost 100 per cent lag-free experience which feels just as good as the iPhone used to.

Rooting an Android device gives you full control

Share your tips

Got a great tip, or found a cool shortcut? Let us know!

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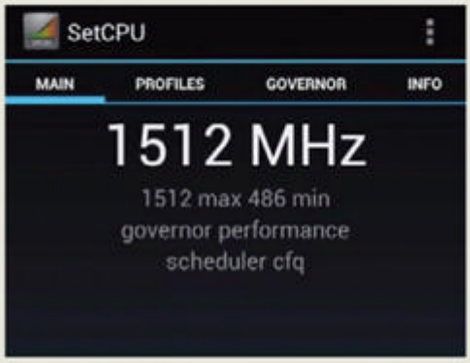
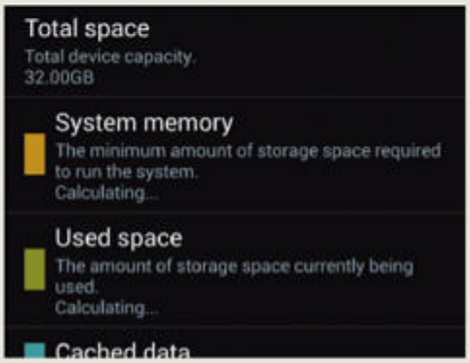
» twitter
@lgrobot
Follow us on Twitter to send us your tips & tricks

» email
qa@littlegreenrobot.co.uk
Discovered anything good about your Android phone? Let us know!



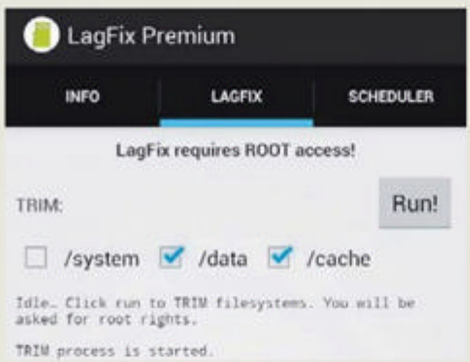
1 Overlock the processor

Apps like SetCPU for Root Users, from Google Play, let you adjust the CPU speed and use it beyond the limits set by the manufacturer. It can be hazardous and overuse may cause hardware failures, but if you take your time you should end up with a faster and smoother phone experience.



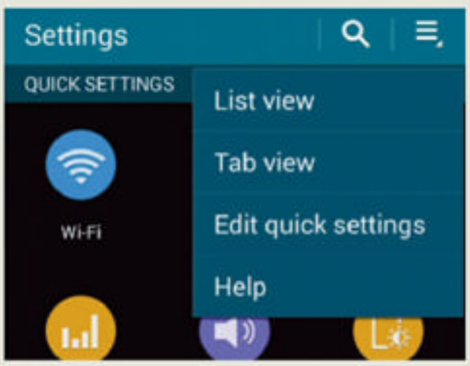
2 Deal with the basics

It makes sense to manage the memory on your phone conservatively, whether you are using advanced solutions or not, and so we would advise to uninstall any apps you don't need and to ensure adequate system memory is available. This will help with general performance.



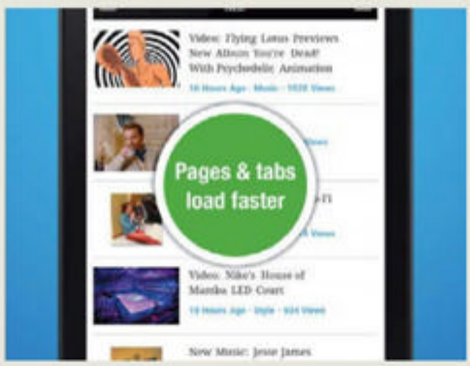
3 Advanced lag-fixing app

LagFix (fstrim) Premium is an advanced app designed to deal with internal system issues that can cause lag. It lets you run the Fstrim tool that tells the memory controller which blocks of memory are free and which are being used so that it can immediately use the appropriate ones.



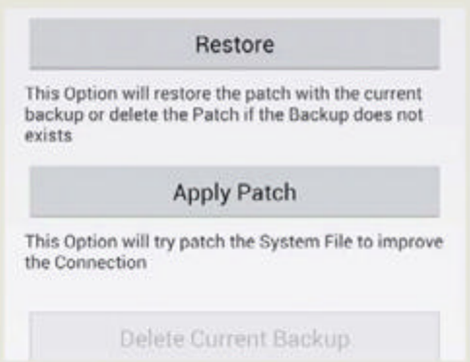
4 Install a custom ROM

If you've already rooted your Android device, it makes sense to install a custom ROM specifically designed for added efficiency. You'll need to do some searching and check out user opinions, but the end result could be a smoother phone that works like a brand new device.



5 Try a new browser

It's likely that lag is most obvious in complex web pages. This isn't unusual on an iPhone or iPad either so it is worth remembering that it will happen from time to time. However, you should also consider installing a new browser, such as Opera Mini, because some are designed purely for speed.



6 Think about data

Remember that the data used in almost every app you use on your Android phone and Internet Speed Master – from Google Play – is designed to improve your mobile connection, so that you don't suffer from momentary blips when browsing or gaming over a network.

Android magazine

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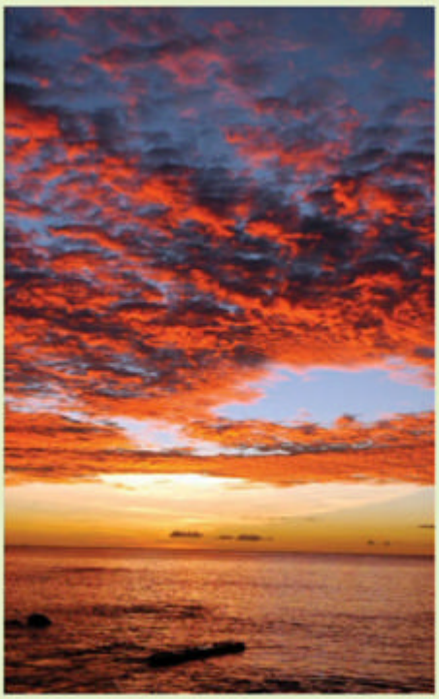

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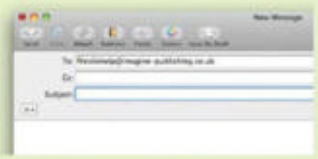

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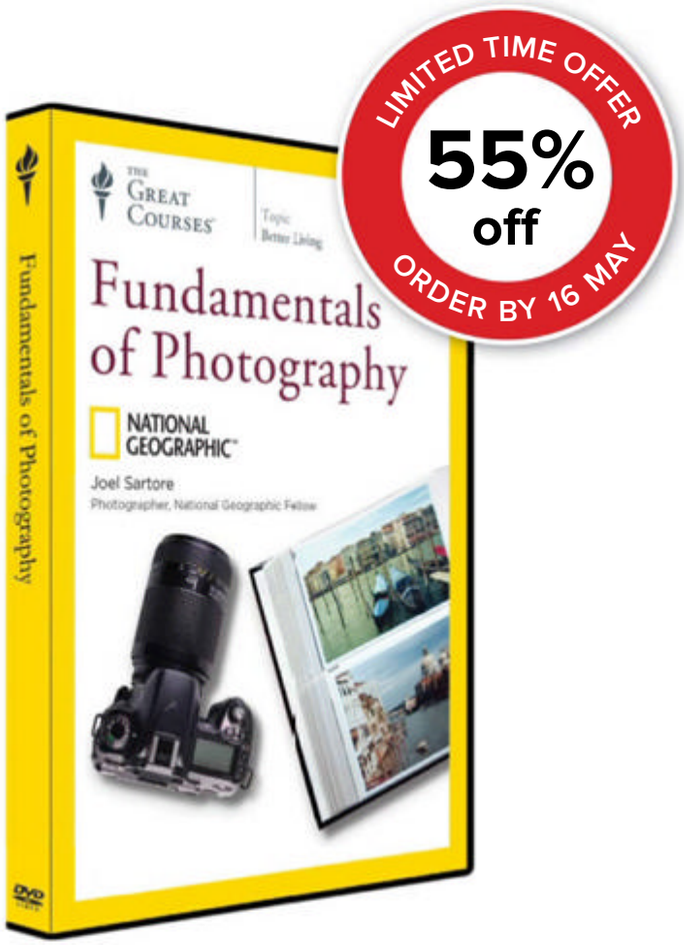

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